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EDITORIAL

Extensive as it is, the international exchange of students is constantly expanding. The demand for academically trained workers is increasing by leaps and bounds in certain parts of the world –specifically in countries where new nations are forming at a rapid pace. It is out of the question that these nations could extend the possibilty of forming these workers at an equal pace themselves. In fact, for many years to come, several countries will resort to the expedient of study abroad as a means of bridging the gap between the demand and the supply of academics of many kinds.

Study abroad invariably means that barriers have to be taken. In every country higher education develops under certain social and cultural conditions that leave their imprint upon it. Adapted to the country's own needs, it takes little account as a rule of the claims made on higher education in other countries.

Anybody who goes to study abroad must therefore adjust himself to conditions which to him are strange. The difficulties encountered by the foreigner who enters a Dutch institution of higher education are generally somewhat greater than those facing students who go to countries as England and France. There is no getting away from the fact that not many people in the world speak Dutch, and this means that the language usually constitutes an additional barrier to study in the Netherlands.

The realization of these difficulties led to the institution, in 1950, of a State commission to investigate the feasibility of adapting higher education in the Netherlands to international requirements, and it was from this State commission that the Netherlands Universities Foundation for International Co-operation (NUFFIC) originated.

Since 1950, a number of institutions of international education, both connected and unconnected with NUFFIC, have been founded in the Netherlands, Institutions of various professional fields, most of them though not all at postgraduate level, they differ in design and size yet are all of the same trend in one respect: they are destined for students from other countries and are adapted primarily to international requirements; tuition is given there in a universal language according to methods that appear to be suitable for an international student community. In this issue the editors want to give a survey of what has been achieved in the Netherlands in the field of international education in only a few years' time. They confine themselves to a general review without purporting to deal with the specific problems set by this type of education. To these problems they hope to revert in a later issue.

ROYAL INSTITUTE FOR THE TROPICS HALF A CENTURY OLD

The Royal Institute for the Tropics, domiciled in Amsterdam, celebrated its 50th anniversary on September 1, last. A large exhibition, viz., "The Netherlands and the Tropics" is being held on the occasion of this jubilee in the Tropical Museum belonging to the Instiute.

The exhibition gives a picture of the work developed by the Netherlands with respect to tropical countries from the time of the exploring expeditions onward. Emphasis is laid on historical subjects as well as present and future activities, a prominent place naturally being reserved for the work of technical assistance in various areas of the tropical belt. In many respects the Tropical Institute has always had an important share in these developments, inter alia, by participating in higher education at the universities and other educational institutions of the Netherlands.

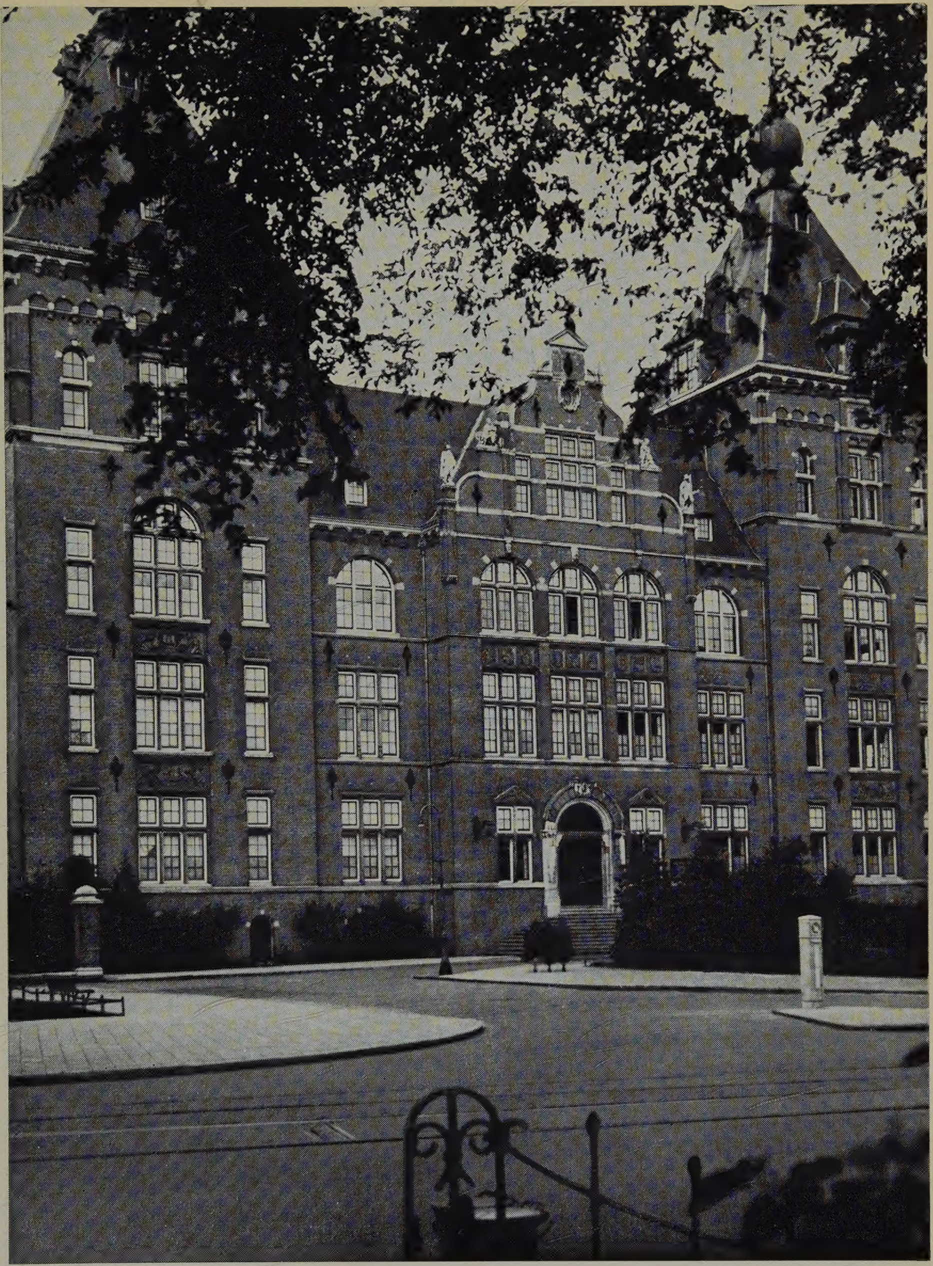
During the 50 years of its existence, the Institute twice changed its name. Founded in 1910 as successor to the former Colonial Museum at Haarlem, it was styled "Colonial Institute" in connection with the Dutch overseas interests, becoming Royal Colonial Institute in 1923. It was rechristened "Institute of the Indies" in 1945, a name that approached more closely the scope of its activities at the time. Finally, in 1951, the present name of Royal Institute for the Tropics was officially determined.

These changes constituted milestones in the Institute's evolutionary process. Until 1951, in fact, its task was principally confined to the Netherlands territories in the tropics, eventually extending to include all "pays chauds." This task consists of the practical and scientific study of tropics and subtropics and the issue of scientific and general information pertaining to this subject. Thus the Institute seeks to serve as a centre where Oriental and Occidental can contact each other for a mutual understanding of one another's interests. It is in this domain that the Institute fulfils a scientific, cultural and informative function in bridging the differences between the Western countries with their modern technique, and the tropical regions which are usually still at an initial stage of their technical development. To this effect a study is made of the conceptions of life, the racial characteristics, the social and religious relationships, the social problems in general, as well as the problems of an economic and financial nature. To this effect researches are carried out on behalf of the development of tropical agriculture, including that of the fertility of the soil. To this effect also investigations are made regarding the state of health and the nutrition of man and beast in tropical conditions.

It goes without saying that within this vast range of activities co-operation with other institutes and organizations of a more or less similar nature is both frequent and intensive. To enable the Institute to work together with others and to cope with the numerous problems arising within its own organization, it has at its disposal three specialized departments, i.e., one for anthropology, one for tropical hygiene and geographical pathology and one for tropical agriculture. Each department deals with its own problems, but may at any time work in combination with either or both of the others, whilst these, in turn, share the results of exchanges of ideas and scientific treatment which they obtain via or in co-operation with their own special relations.

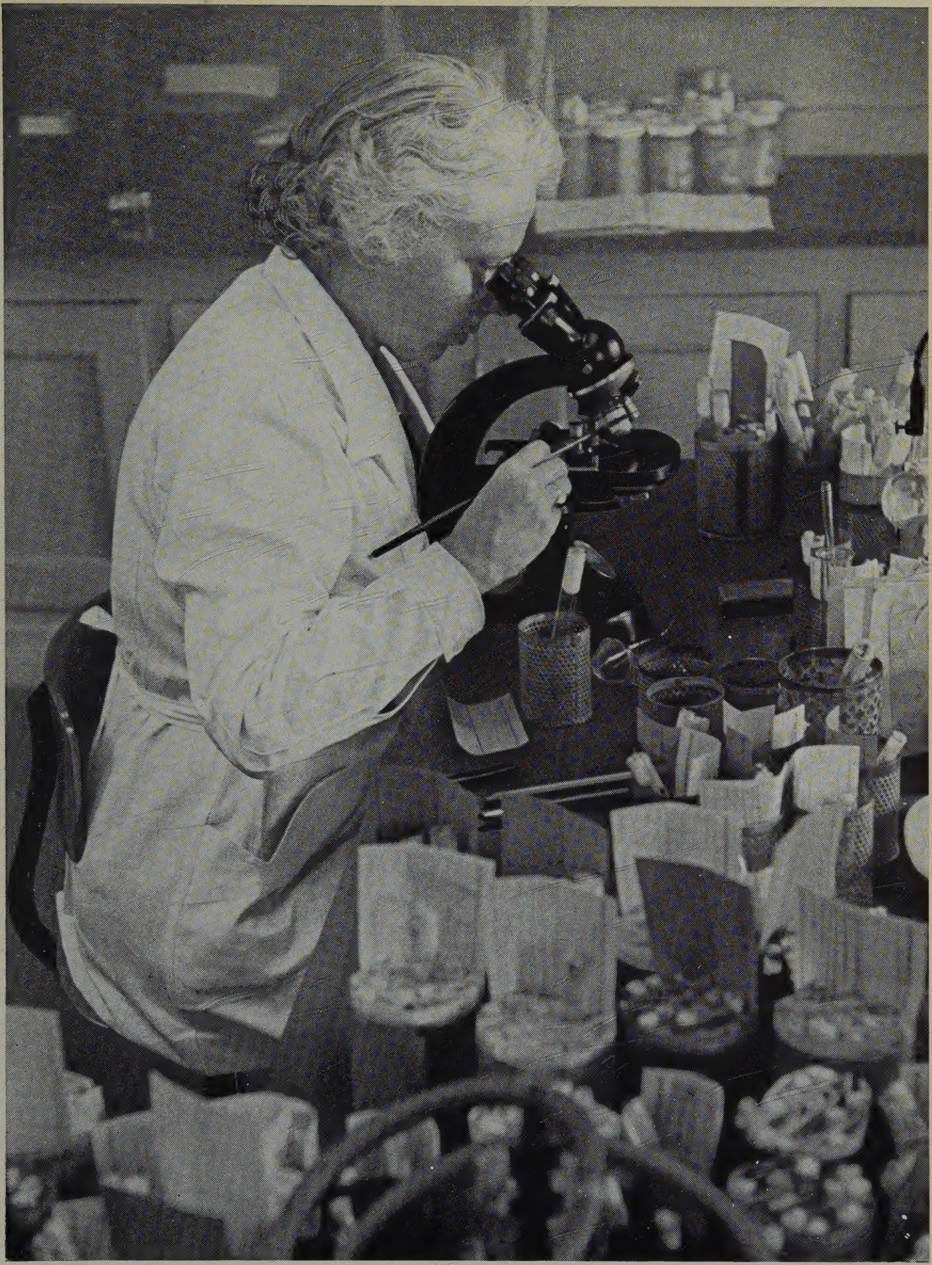
Close co-operation between economic, agrarian, sociological, ethnological and medico-hygienic experts, such as that existing within the Institute, is becoming more and more of an indispensable factor in studying tropical questions and providing proper information and advice. The underlying purposes of all these activities are clearly defined in an article entitled: "Overpopulation: Some Medico Biological Considerations" written for this issue (see page 5) by Prof. Dr. H. A. P. C. Oomen, one of the Institute's scientific collaborators and professor at the University of Amsterdam. Purpose and task of the Royal Institute for the Tropics speak for themselves in the motto chosen for the medal which was struck on the occasion of the 50th anniversary, i.e., "Felix Artibus Colendis."

This jubilee has led the editors to give a prominent place in this issue to the Royal Institute for the Tropics, as a token of appreciation for its many and important activities.

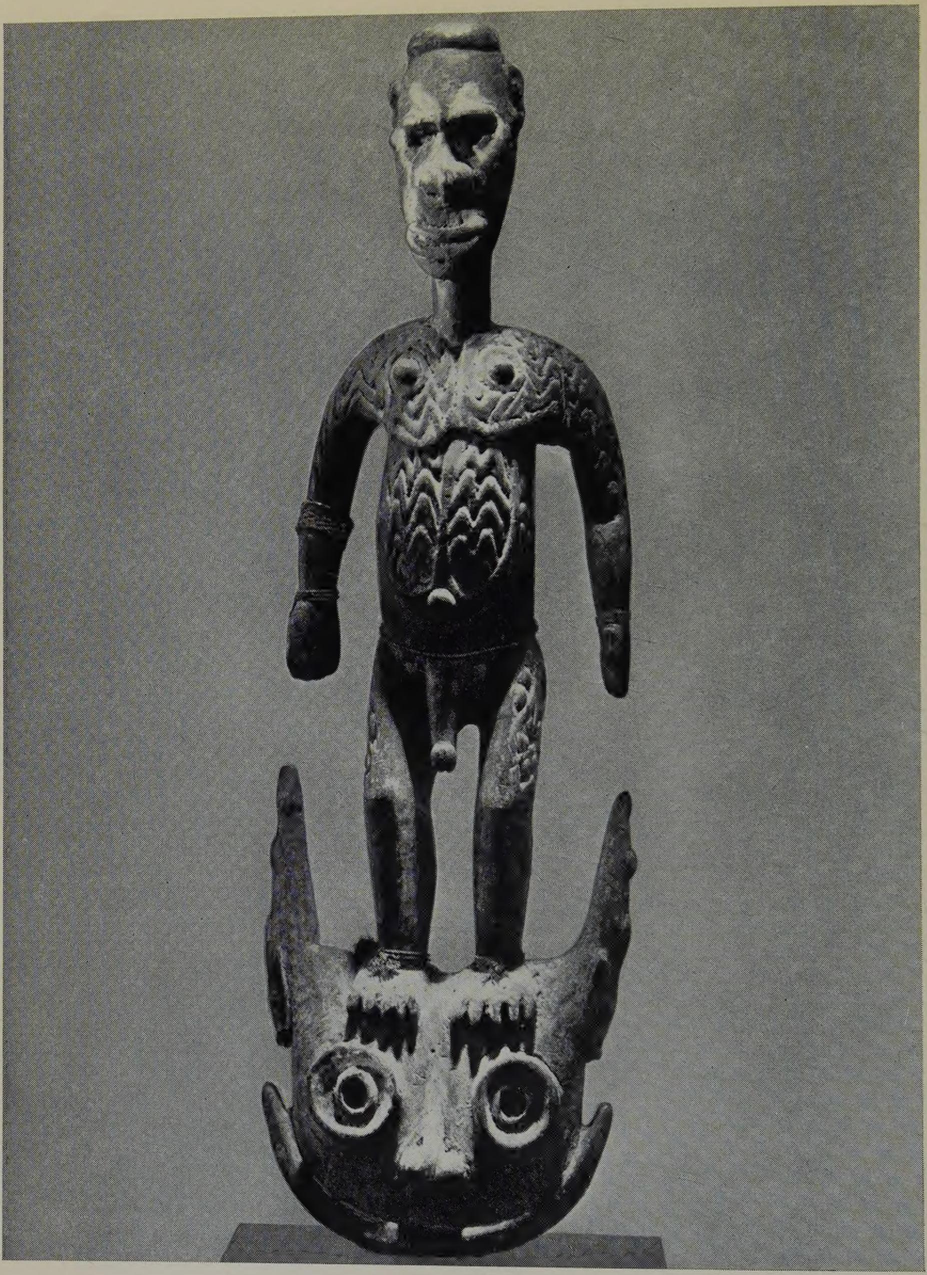


Royal Tropical Institute, Amsterdam. Main entrance of the Museum.

Royal Tropical Institute, Amsterdam. Well-staircase in the Department of Cultural and Physical Anthropology.



Royal Tropical Institute, Amsterdam. Leptospirosis laboratory of the Department of Tropical Hygiene and Geographic Pathology.



Royal Tropical Institute, Amsterdam. Wooden hook from the Sepic region in the Tropical Museum.

OVERPOPULATION: SOME MEDICO-BIOLOGICAL CONSIDERATIONS

The dense population of the Netherlands confronts experts in all fields with special problems not encountered, or not at least to the same extent, in less densely populated countries. We might compare the Netherlands to a heavily manned 17th century windjammer. Should a disease break out on board, the risk of infection is great, for many people are living in a confined and, moreover, limited space. Should there be no wind for days at a stretch, there is a chance of the food becoming scarce or turning bad, the water too –again factors which constitute a threat to the health of the crew. But the comparison does not hold true all along the line. Thanks to an excellent system of preventive medicine, the risk of infection is extremely slight in the Netherlands, being no greater than in a sparsely inhabited country. There is no food shortage, for the Netherlands is able to export part of the foodstuffs it produces and what it lacks can be obtained by exchange. But the very fact that the comparison does not hold true makes our point clear: in order to keep this densely populated country in condition more than ordinary measures are required, which means that specialists in all fields are constantly being confronted with new or increasing problems to solve.

Let us select one out of many examples. The owner of a flourishing industrial concern wishes to expand his business. It is situated on the outskirts of a town. He therefore applies for permission to purchase the adjacent land necessary for his purpose. This, however, proves to have already been earmarked for new housing, which in view of the rapid expansion of the urban population will brook no delay. Our industrialist therefore decides to decentralize his business and puts in an application for land on the other side of the town. But here the land has been used for centuries for bulb or vegetable growing. Thus the expansion of his business comes into conflict with the interests of others. Which must be sacrificed –industry, for which stagnation means decline; the market gardening undertakings, whose services can scarcely be missed, or the new housing? A strict order of priority will have to be observed and the various interests concerned carefully weighed, one against the other.

The man of medicine comes up against similar problems: how do these increasing masses of people manage to keep healthy? In answering this question – the one with which this article is mainly concerned – we will use as our basis the World Health Organization's definition of health, i.e. the optimum standard of physical, mental and social wellbeing, and not simply the absence of illness.

Health and Attacks on Health

The main causes of illness recognized in the mid-19th century were: infection by certain organisms, mechanical or other physical violence, "spontaneous" disorders of the growth of tissue, injury to tissues or to the metabolic processes caused by chemical agents, and abnormalities present at birth, of an hereditary or other nature. Less attention was paid to nutrition as a source of illnesses or defects, though the fundamental significance of food to the building-up of the body and to the metabolic processes was recognized too.

Let us return to the comparison we made to begin with, the comparison with a windjammer. On board this vessel we encounter an assault on health in the form of scurvy, resulting from a deficient diet. Food was available, but it had been salted so as to keep. It was, as we know, James Lind (1716–1794) who was one of the first to realize that scurvy came from an improper diet, and he introduced lemon juice into the naval diet in a successful attempt to combat the disease.

Among the early industrial workers and the poor peasantry of the 19th century we meet with "the potato eaters," whose bitter memory has been perpetuated in the deeply tragic painting of that name by Van Gogh. The great importance that must be attached to a proper diet was slow to be realized in Western Europe. In this respect it has proved extremely difficult to put an end to the influence exerted by the "wise, old grandmother." Only a short time ago, a deaconess working in Lower Saxony complained of the dominant influence the grandmother (habitually living in with the family) had on the children's feeding and upbringing (clothing, hygiene, living habits), as a result of which rickets, tuberculosis and the consumption of alcohol were all prevalent among the children in the old villages, while the health nurse and social worker, who came to introduce new ideas, were regarded as enemies.

Further, if as a result of the taking over agricultural land for other purposes it became impossible to provide a proper diet, this would mean nothing less than a national disaster in the long run. This is a problem which concerns others as well as the doctor, the planner, the educater and the technician. It is a problem for the entire community and its leaders. Thus we may state that physical planning bears an influence on many of the facets described. The circumstances which accompany a human being from his birth help to determine his bodily and mental health.

Diseases

Infectious diseases are usually contracted from others. Let us return to our 17th century windjammer. Typhoid breaks out. Within a short time a large portion of the crew fall victim to the disease – the result, to be sure, of the confined quarters. But not only of these. The crew of a ship depend closely on each other. Nursing is primitive. The patient cannot be isolated. The hygiene on board leaves much to be desired. Besides, the level of education reached by the average sailor is not such that a great deal can be expected of him, according to modern ideas. And the space on board is limited absolutely – one can't go any further than the ship's rails.

If we return to land again, we see how close contact between population groups is a condition for the origin and spread of an infectious disease. Counter-measures were taken early on, such as quarantine, used in Italy in the 14th century. The concentration in Mecca of pilgrims coming from all corners provided the impulse which later resulted in the idea of quarantine measures.

Insight and rational measures have already got rid of many serious infections. The understanding, reliance on old-fashioned conceptions, mental sloth, habit, and religious objections too, have all hampered the efforts made to combat these diseases. One has only to remember that even in the Netherlands protection from smallpox by vaccination is still not complete owing to religious objections. Similar objections are encountered in combating plague in Muslim countries, where resistance is put up to the puncture of the spleen of those who have died from plague and, in South America, to liver-puncture in the case of yellow fever. We must proceed on the assumption, however, that the man of the future will prefer to see himself and his family as clean as possible, where hygiene is concerned. Since the second world war concentrated efforts have been made in the West to combat tuberculosis by the use of preventive vaccination and mass X-ray examination. In the Netherlands the sanatoria are emptying and good health is possible for countless people whose lives were formerly threatened by this wasting disease.

At the moment the world is busy stamping out malaria, a disease once referred to as the greatest enemy of world health. Other infectious diseases will be tackled in time. Antibiotics have provided doctors with a weapon of which the world would not have dared to dream twenty years ago. Nowadays, in fact, the medical student in the Netherlands can already be heard complaining that during his training he no longer encounters infectious illnesses which were formerly highly common. It may be that future generations will not even be able to find these diseases mentioned in their text-books. But we still have the expansion of the population, threatening to result in overpopulation, to reckon with. The increase in population density will heighten the future risk of infection. The doctor, however, is in so favourable a position strategically that, in the Netherlands at least, we need feel no concern on this score.

Physical violence is another matter, though more can be done about injuries to and mutilation of the body than ever before. The fact that so little can be done, though, as regards the prevalence of street accidents arising from the increased volume of traffic in the crowded towns, is a matter of concern. Here, once again, we see the relative lack of space appearing in the form of a problem, physical violence threatening health in an unforeseen way. Yet the threat does not come from traffic alone. The dangers of radioactive radiation are being given the same emphasis, and the chances of harmful results are increased when many people are concentrated in a limited area.

As regards the menace of malignant tumours, progress can be reported on the one hand in the fight against cancer, though, on the other, there has been a considerable increase in the number of cases occurring in the most susceptible age group. It is unlikely that man, who is contemplating visits to the moon, should be unable to master the cancer problem. This will mean an even longer average length of life than at present, but, ultimately, death from other causes. Among the principal of these other causes are degenerative diseases of the arteries. But these, too, can be prevented. A carefully arranged diet and the removal of pressure by ending mental tension and by taking things quietly can help in this case. But here it should be remembered that the Netherlands is a western country where the national temperament is entirely different from that found in an oriental country. There is, therefore, the question of how western man will react if, on reaching a certain age, but still disposing of his former capabilities, he will be obliged inevitably to retire from his working – and even perhaps from his family – environment. The often heard expression: “I want to die at the bench” affords us, perhaps, some indication of the conflicts which will arise when this measure is applied. In his new role as a geriatrician, the doctor is in a position to lighten the aging person’s load of physical disability. The age-group structure of the modern society seems to lead in itself to problems which can rightly be regarded as problems of overpopulation.

Formerly we could speak of the survival of the fittest, at least as far as some congenital abnormalities were concerned. Yet the percentage of persons so handicapped who nevertheless reach the age of reproduction is rapidly increasing. The children's doctor, the biochemist and the surgeon are always finding ways and means of guaranteeing them a reasonable existence, though their treatment is sometimes extremely expensive. The abnormal are no longer weeded out as they used to be and that their numbers will increase due to atomic radiation is not an imaginary danger. This, too, is a new aspect of the future population structure.

If we give a fairly wide definition to the term poisoning, it can include various new dangers. Nowadays insecticides or poisonous products from industry not infrequently get into our food. Serious types of poisoning are directly connected with the density of the population and with human activities. Industry pollutes the surface water and the air we breathe. Should radioactive matter be involved instead of the ordinary chemical matter now involved, much worse things lie in wait for us than the foretastes we have had so far. The question arises whether, as the population pressure increases, the deleterious by-products of human activity can be disposed of or rendered harmless quickly enough.

Space

How much room does a human being need in order to remain healthy? If we think of the tens of thousands of mice that can thrive in a laboratory of limited size, we might think there is no need to worry for a long time yet. But the problems that arise for us here have to do with mental health. We have only to think of the blunting influence of concentration camps, refugee camps and similar concentrations, even where there is food enough. How far can we go in packing people together? Is there, perhaps, a difference between the eastern and western mentality here too? In India one sees among and besides the streams of people ascetics to whom it makes no difference whether they are sitting on a lonely throne or are being almost trampled underfoot by the crowd. Children, too, seem comparatively immune. In a shopping centre in China one can hardly move a step without brushing a child at play. These children are comparatively healthy. Their parents spend a lot of money on food. The space problem of peoples who still pursue primitive forms of agriculture and of nomadic tribes keeping their herds of cattle is of a different nature. They need space in order to secure their livelihood. As soon as that space is lacking, they have to look about for new means of subsistence.

Nutrition in the Future

Man has existed so far by the grace of the plant kingdom, which supplies him, directly or indirectly, with building materials and fuel in the form of food. Is there sufficient food for humanity at the moment, and will the earth be able to meet our future requirements? From the biological point of view, there seems to be no problem here. But we have been basing our observations on a medico-hygienic definition of health which not only implies the absence of illness but every human being's optimum development as well. The medical man now demands that no deficiency of diet of any kind shall stand in the way of human health. It is an unnatural demand to require that every member of a population should enjoy the optimum standard of welfare, and consequently a great deal of human ingenuity and human intervention is necessary to achieve this. No wonder therefore that it has never been achieved for mankind as a whole. However, modern technique, science and the world's developing unity now offer us opportunities to do what has never before been achieved.

Expectations in this field display some interesting contrasts. There are the Malthusian pessimists who are of the opinion that the production of the vital means of subsistence will never be able to keep pace with the increase in world population. They seek to limit excess births indiscriminately. Occidentals feel threatened and preach sermons to Orientals who look upon children as their only investment. A third view is that of De Castro, who maintains, for that matter on disputable grounds, that the rise in the standard of living results in a sufficient decline in fertility. The optimism of the economist, Colin Clark, is more businesslike. He opines that the earth will be able to feed its inhabitants for many centuries to come, if the conventional means of subsistence are used properly, and provided one follows the Netherlands' example!

It is not only mothers who are reluctant to listen to planners. An academically trained representative of a "new" country where an attempt is being made to introduce familiy planning remonstrated: "We love life." The future consequences are more serious than those, for instance, of the refusal in the past to be vaccinated against smallpox on conscientious grounds.

Nutrition Today

If we turn back from speculations about the future to the actual situation today, things do not seem much clearer. In 1952, Lord Boyd Orr, who had been Britain's Minister of Food during the war, declared that two-thirds of mankind is badly nourished or suffers from hunger, a remark which echoed round the world. It has proved, and still proves, a powerful argument in the hands of the Press to influence public opinion in favour of less prosperous countries. But the statement was soon disputed, and on the grounds of a mistake Lord Boyd Orr had made in appraising statistics which were themselves unreliable. Although compiled by the World Food and Agricultural Organization itself, the statistics could not but be unreliable, however, for no good statistics are compiled in countries where the need is great, the average length of life short, and the general level of education low.

What must we take to be the actual state of affairs? Is hunger unknown? Hunger is a vague term. In many cases the man who is suffering from what the experts regard as malnutrititon will not be aware of this himself. He is fed. Sometimes he has no appetite. This is the case, for example, with "kwashiorkor," a widely disseminated infant disease ascribed to protein deficiency. Lack of appetite is a vicious and fatal consequence of this disease. The child shrivels up and withers away. It is like a plant which one tries to raise with water alone. For a time it lives on its reserves, remains small, its tissues being of the cheapest composition biologically. At a certain stage the metabolism is disrupted, and the young plant dies.

Starvation is a fatal condition unless help is provided quickly. Primitive tribes, with a difficult existence, will not complain of hunger. They know no better. Yet according to accepted standards they are far from having a satisfactory and balanced diet. The reason for their meagre diet does not lie in the food alone but in the difficulty they have in procuring it. Technique, division of labour and transport can bring about an improvement here. Qualitative or quantitative deficiencies in the mother's diet sometimes result in a high infant mortality owing to insufficient breast milk.

Seen in this light, overpopulation is an equally indefinite concept. There is overpopulation in the forgotten mountain valleys of New Guinea. Every square yard of cultivable land is used, the slopes being cultivated right up to the mountain crests. The diet of the inhabitants is one of the most monotonous imaginable – sweet potatoes and greens. To us this seems more like grazing than eating. It is not the quantity of the food that is the determining factor in this case, but its monotony and quality. The people do not suffer hunger, but they do suffer from the unfavourable effects of this diet.

Some regions of Java are overpopulated from the viewpoint of nutrition. For decennia there have been hundreds of cases of hunger oedema after every failure of a harvest. The number of small children suffering from lack of protein or vitamin A in these parts is high. It has been discovered that the older adults are a few centimetres taller than the younger, whilst everywhere else in the world where welfare is on the increase, the opposite is the case. The reason for this is that the older people were brought up on rice as their main diet, while the younger ones were brought up on cassava, an inferior food. Rice is still cultivated, but it is marketed and cassava bought with the proceeds.

It is among the children that the effects of poor nutrition first become evident. Not only a high infant mortality but an equally disturbing high toddler mortality is usually met with in underdeveloped countries. While deaths among the breast-fed are related to environment, deaths among toddlers are closely bound up with the general diet. Cow's milk is a symbol of the prosperous community. All over the world, cow's milk has proved a main factor in combating child mortality.

Poor nutrition is not always mainly due to a shortage of food but often to other factors. The deaconess in Lower Saxony would be able to confirm that the diet customarily given to young children is not based on any shortage of food but on an unhealthy conservatism and a deeply-rooted desire among the old to rule things their own way. It is ignorance, too, in some tropical countries which prevents the young child getting the necessary proteins. Ignorance is a typical characteristic of static, backward environments.

Bad nutrition can often be improved when combating, in a patient, a disease like malaria. The presence of this disease can also be ascribed to the impotence of socio-economically weak regions. Seen thus, bad nutrition is closely connected with more than overpopulation or underproduction – it is connected with the essential character of the retarded areas.

Nutritional Standards

What demands must the expert set as regards satisfactory nutrition? An extensive series of recommendations as to the calorific value and composition of the diet is available, but large areas of the world are not in a position to follow these recommendations.

Let us take another example. In the Netherlands it is strongly urged that a child should receive 50 grams of protein a day. Often a comparable Papuan child in New Guinea receives no more thans 10 grams. Protein is the most difficult food to produce, the dearest and the scarcest, but also the most important. Rich countries can afford to set themselves a high standard. Influenced by environments which cannot be labelled as unhealthy, we now are gradually accepting a considerably lower protein standard as the optimum. This is not surprising, for the original standards, with their very wide safety margin, could only mean anything to highly developed countries, where high demands can be set. The addition of a few grams of protein a day to the average diet places heavy demands on farming. One sometimes asks oneself whether the "Pacific standard" which, formerly, the Japanese strove to reach in their expansion plans, and which was spoken of slightingly by Europeans before the last war, does not really bear witness to greater realism.

On paper at least, we can improve the diet of the primitive Papuan enormously by giving him one glass of milk extra a day. If we want him to approach the Netherlands' standard, however, he will need six or eight. Moreover, he must be rescued from tuberculosis and malaria, which in themselves require the glass of milk. We arrive at the conclusion that, although nutritional needs are primary, they cannot be fixed at absolute levels. Though anything but denying that there are many dietary situations in the world, urgently in need of improvement, the approach to his enormous problem cannot be but realistic. We would prefer that the less developed peoples, who are more or less content with their monotonous food, are not dragged along into "the revolution of expectation" which now rules the world. For, however carefully formulated, nutritional standards may still be unsatisfactory. To conclude, a final example. In former times the worker walked to the place of his job. Then he went by cycle. Now he has a Moped, in the U.S.A. even a car. What exactly is really necessary? "Overpopulation" or "inadequate nutrition" in a medico-biological sense, is just as relative as overpopulation in the economic sense.

H. A. P. C. OOMEN *

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* Dr. H. A. P. C. Oomen is Professor Extra-Ordinary of Nutrition Science in the University of Amsterdam, nominated by the Royal Tropical Institute. He is head of the medical nutrition section of the Department of Tropical Hygiene and Geographical Pathology at the aforementioned Institute.

CHRONICLE

UNIVERSITY NEWS

State University at Leyden

77th Lustrum

The 77th lustrum of the State University at Leyden was celebrated in June 1960 amid extensive festivities, and, in accordance with tradition, the "Citizenry Days" preceded the "Academy Days."

The Academy Days opened with a formal meeting in the old Pieterskerk. Speakers on this occasion were the Rector Magnificus, Prof. Dr. J. E. Jonkers, and the President Curator Dr. J. E. de Vos van Steenwijk.

Professor Jonkers sketched the university's present situation. Then, casting a glance at the future, remarked that it would set big problems and require a steadily advancing adjustment to the exigencies of the new times. The university presses ahead, he said. It is burdened and blessed with its past. It stands in the present and reaches towards the future.

The President Curator called to mind that Leyden University owes its existence to William of Orange, the man who created the bond between the Netherlands and the House of Orange. The university was founded to provide in a need, namely, the training of clergymen–thus fulfiling a serving function, just as today the university also has a serving function to fulfil.

Shortly after its foundation important changes dawned in university conceptions. Where the preservation and impartation of science had always been regarded as a task until then, it was especially the ascent of the natural sciences that brought about an expansion and reformation of science because it began to rely on its own research.

Speaker contested the notion that as a result of the ever-growing specialization the academic is wholly engrossed in his own limited professional field. He pointed to the wide confidence enjoyed by different groups of academically trained workers in Dutch society–a confidence that was founded on their attitude and demeanour rather than on knowledge. This confidence, he said, is a valuable cultural asset. Speaker did not agree with Professor Groenman's conceptions*, who sees the university as a loose entity with its thousands of students and its many institutes. He believed that the university is, indeed, a unity, though this is not always apparent. That is how it is with much in Dutch society, he added. Our patriotism does not manifest itself every other minute either, but it is capable of sacrifices when it comes to the point.

Looking to the future, Dr. de Vos van Steenwijk pointed to the healthy rivalry existing between the universities, in which the element of play, as Huizinga saw it, figures largely. He hoped nevertheless that the Leyden Academy would continue to occupy an honoured position. All who form part of the academic community can help to build up the future. To this effect the serving function should be kept in mind. Plans for the future should be attuned to what the country, Europe, the world, will demand.

State University at Utrecht

Expansion Schemes

In April last a beginning was made with the extensive expansion schemes of Utrecht University. The whole project will require an investment of more than 400 million guilders. The construction of the new physics institute, costing 28 million guilders, has already begun, while it is hoped to start work on the new buildings of the veterinary faculty in 1961. An estimated sum of 175 million guilders is needed for the future removal of the Academic Hospital, which will subsequently have a capacity of 1,200 beds. A new dental clinic will cost 20 million guilders. All these buildings combined will arise on a site in the eastern part of Utrecht. It will be decided later on whether the faculties of the spiritual sciences are also the be moved to this site.

University of Amsterdam

Shortage of Scientific Personnel

A report was published by the Scientific Staff Association of the University of Amsterdam in April last, comparing the composition of the scientific staffs attached to the four public universities in the Netherlands.

The University of Amsterdam, with the largest number of students (6,594 as compared to

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* See the article "New Forms of University Life" in Vol. IV, No. 2, June 1960

5,730 in Utrecht, 4,842 in Leyden and 2,796 in Groningen), has far fewer professors (179) than the State Universities at Utrecht (221) and Leyden (205). Groningen takes fourth place (168).

With respect to academic officers, Utrecht also takes the lead (476), followed by Leyden (344). Amsterdam is third (222) and Groningen fourth (168). On the other hand Amsterdam has the largest number of assistantships (533), followed by Leyden (388), Utrecht (300) and Groningen (280). In other words, at Amsterdam University one professor is in charge of the training of twice as many students, on average, as in Groningen and one-and-a-half times as many as in Leyden and Utrecht. Groningen averages one professor per 19 students, Leyden one per 24, Utrecht one per 26, and Amsterdam one per 37. Furthermore, the scientific staff in Amsterdam is more heavily burdened than those in the other universites.

Roman Catholic University at Nymegen

Building Plans

The Roman Catholic University at Nymegen is to carry out large-scale building plans. The whole complex of university buildings, both those of the A and the B faculties, will arise in the grounds of the Heyendaal Estate.

The medical faculty buildings are to be enlarged to a total content of 600,000 m^3, while the Radboud Hospital the – Academic Hospital – will first have a capacity of 600 beds, to be extended to 1,000 beds later on.

The substantial extension of the mathematics and physics faculty, necessitated by the increase in the number of subjects and the expected rise in the number of students in years to come, is effectuated in an original manner via a normalized laboratory that can be changed in a simple way. A specific branch of study finds temporary accommodation in this universal laboratory until such time as its own permanent home is ready. Its place is then taken by the next branch. Thus a new field of science can be added to the faculty every three years. In 1957 it was biology, this year it will be mathematics and physics, to be followed by chemistry in 1962 or 1963 and geology and pharmacy in 1966. It is estimated that the whole project will be completed in 1968, at which time the laboratory will lose its universal destination and offer permanent accommodation to mathematics, astronomy, geology and pharmacy.

Agricultural University at Wageningen

Professor Eijsvogel Rector Magnificus

Two years ago a quadrennial rectorate was instituted in the Agricultural University at Wageningen. The late Prof. W. de Jong, who died in January of this year following a fatal car accident, was the first Rector to be appointed for a term of four years in 1958. His successor for the remaining period until 1963 is Prof. Ir. W. F. Eijsvogel, professor of hydraulics, irrigation, road and hydraulic engineering and forest architecture at Wageningen since 1946.

Roman Catholic Shool of Economics at Tilburg

To Have a Juridical Faculty

At a festive meeting on the occasion of the 18th Tilburg School Day, the President Curator announced that the School is shortly to be extended by one or more faculties, including a juridical faculty. The students enrolled at Tilburg currently number 843, as compared to 765 last year.

Technological University at Eindhoven

Five New Buildings

During the celebrations on the occasion of the dies natalis of the Technological University at Eindhoven on April 28, 1960, the university complex was extended by five new buildings. The Minister of Education, Arts and Sciences performed the official opening ceremony.

The new hall of the electronics department, covering an area of 1,450 m^2, comprises workrooms for practical instruction and research work, where investigations are carried out on the static and dynamic properties of appliances commuting electric energy and vice versa: rotating electric machines, electromagnets, etc.

The hall for mechanical engineering, covering an area of 12,360 m^2, houses practically the whole mechanical engineering department, the central technical service and various practical workrooms.

The halls for physical and chemical technology, each covering 4,000 m^2, comprise the whole chemical technology department excepting the basic training section. The processes of the chemical industry are followed and studied on semi-technical apparatus erected there, while in smaller laboratories research is done in the field of organic and inorganic chemistry, physical chemistry and instrumental analysis.

The new gas laboratory is destined for research on materials under very high pressure and under conditions with risk of fire and explosion. This laboratory, covering 540 m^2, is divided into heavy reinforced concrete cells, where experiments are carried out that can be watched from the outside through spy holes.

Several of the new provisions are still of a temporary nature. To-day, four years after its foundation, the Technological University numbers 759 students, but it is expected that the 2,000 mark will be exceeded by 1965.

Mathematical Engineering Studies in the Technological University at Delft

Although only two diplomas in mathematical engineering have thus far been conferred at the Delft Technological University, interest in this training is increasing year by year. This is evidenced by the fact that 81 young people are studying this subject in Delft at the present time. Approximately 50 of them have passed their "candidaat" (intermediate) examinations and six have successfully completed the first part of the engineer's examinations. The training for mathematical engineer was instituted on September 1, 1955, but only students of considerable mathematical ability will be in a position to follow it with success. The study, officially lasting five years, is, in fact, rather difficult although no laboratory work is involved.

There are many perspectives for mathematical engineers. Besides rewarding opportunities in industrial concerns, where they can solve problems posed by the industry along mathematical lines, positions are open to them in the field of pure and applied scientific research, and with the annotation "didactics" on their diploma, they soon find employment in advanced and higher education. Of old the subdepartment mathematics forms part of the general sciences at Delft, as do the non-technical subjects such as business economics, industrial psychology, economy and law. Mathematics is classified under general sciences because it fulfils a serving function. It has, in fact, always formed an indispensable auxiliary science to almost all subjects taught at Delft. For this reason every student who enters Delft is obliged to follow a two-year introductory course in mathematics, except the architects, who need only attend a year's classes in this subject. In the course of time mathematics developed more and more into an independent science at Delft, with the result that this department commenced the training of mathematical engineers five years ago. Its task at the present time is twofold: firstly to give mathematical instruction to future engineers of all branches, and secondly to attend to the training proper for mathematical engineer. The introductory course in mathematics is of considerable importance because there is a true famine in all the technical departments for mathematical knowledge that has been adapted to meet the requirements of the department concerned. Moreover, various departments operate a section for scientific research and those working there have a great need for applied mathematics, enabling them, inter alia, to tackle problems analytically, statistically or, for example, with the aid of operations research methods.

In order to facilitate the introductory course to some extent for first and second year students, they are given the opportunity two afternoons a week to attend classes where they can pose all sorts of questions and learn to solve mathematical problems. These classes are given by no less than 24 academic officers, or instructors. Working under a chief instructor, these instructors help the young students to bridge the gap between the secondary school with its classical character and the free studies at the Technological University with its 70 subjects per branch of study.

With respect to the actual training for mathematical engineer, this links up with the propaedeutic examinations in civil, geodetical, mechanical, electrical, physical, marine or aircraft construction engineering. Students having successfully passed the propaedeutic examinations for chemical engineer or the first part of the intermediate examinations for mining engineer, must sit for a supplementary examination in mathematics. A condition in the training for mathematical engineer, in fact, is that the student must be able to "lean" against a certain (technical) department. If, for instance, students of the mechanical engineering department or the electrical department, on passing their propaedeutic examinations, decide to continue with mathematical engineering, they must, in addition to the eight to nine hours of mathematics a week in the third year, devote themselves for six hours to the technical optional subjects of their original branch of study. Anybody who enters Delft with the outspoken desire to be trained directly as a mathematical engineer, is generally advised to follow the introductory course in technical natural science.

The purpose of this scheme is to aquaint mathematical engineers with technical problems. This will not only enable them to discuss such problems with their research colleagues later on, but will also permit them to formulate these problems mathematically, an extremely difficult task at all times. The mathematics taught in the third year are of an introductory character at first, though they go much deeper than in the first and second years. Shortly afterwards, however, the student is confronted with "real" mathematics, and this is also the case in the fourth year. Moreover, they must spend 120 hours on a practical project during the third year, which requires work with desk calculators. In this way the university seeks to accustom prospective mathematical engineers to the task of calculating answers down to the last fractions, because that is what will be demanded of them in practice later on. Furthermore, third-year students are taught to draw up programmes for electrical computers. They can take their intermediate examinations at the end of the third year.

The fourth year, a consequent continuation of the third, may be considered the beginning of the engineer's study proper. Students who have learnt programming by then, start working independently with the calculating machine and are given their own research projects to do, possibly combined with a study of literature. The first part of the subsequent engineer's examinations displays a differentiation, that is to say that either the accent is laid on the physical properties of matter or the organizational angle of the problems is stressed. The fifth and final year, during which students attend only a few classes, is devoted primarily to the independent execution of all kinds of research projects, which are larger than those of the fourth year but less extensive than the work required for graduation. The prime aim of the studies in the fifth year is to stimulate the independence of the prospective mathematical engineer – an independence that actually begins to develop in the fourth year because at that time nearly all students start practical work.

Parallel to this training is that at the institute for applied mathematics in the university building, where the mathematical problems of the other departments and incidentally of the industry are tackled. A large number of associates of the different scientific fields are attached to this institute. They are entrusted partly with teaching duties and partly with the attendance to prevalent problems. The so-called zebra, a very simple binary calculator, is housed in this institute.

INTERNATIONAL COURSES

International Training Centre for Aerial Survey

Ten years ago the President of the Technological University at Delft, together with his colleague of the Agricultural University at Wageningen, founded an international centre for training and research in the field of aerial survey. This International Training Centre, popularly known as the I.T.C., is an independent public foundation and is subsidized by the Netherlands Government. This formal act resulted from a suggestion put forward by the United Nations in 1949 to found an international institute of this nature as a Dutch contribution to international technical co-operation – a proposal that met with ready acceptance and support in view of the fact that aerial survey is of great value to technological and economic development schemes.

The I.T.C.'s two main branches are photogrammetric engineering with the techniques of aerial photography and survey navigation on the one hand and the interpretation of aerial photography for the economic development of natural resources on the other.

Naturally the organization of the I.T.C. deviates from the traditional pattern of the national universities. To fulfil its task in a proper way the centre's system of instruction is highly flexible and the training programme is adapted to each student's individual needs. This has proved necessary because the students' preliminary education and experience, as well as their aims, differ as greatly as do their nationalities. Consequently, refresher courses are given to those who need a brush up in mathematics or physics, but participants may also study special subjects or follow a short course without aspiring to obtain a certificate or a degree. One such special course in aerial survey and regional development will commence in January 1961.

However, the majority of students come to the I.T.C. to participate in one of the regular courses. These courses may lead to the I.T.C. Technician's Diploma or Engineer's Degree, to a Bachelor's or Masters' Degree in Photogrammetric Engineering, or to a lower or higher certificate in any one of the interpretation sections, viz., geology, soils or forestry. Lectures are given in English but in the event of a sufficient number of French-speaking participants a course may also be given in the latter language.

The number of students has gradually increased from 29 during the first academic year 1951–1952 to 116 in 1959–1960. Thus far students from 60 different countries have been registered with the centre.

Economic Development and Social Change

Courses of the Institute of Social Studies in The Hague in the Academic Year 1960–1961

The ninth academic year of the Institute of Social Studies in The Hague commenced on September 12, 1960.

Since 1952, the year it was founded by the joint Netherlands universities, the Institute has developed into a lively international meeting place in the field of the social sciences.

The central theme on which the Institute is engaged is that of the problems of economic development and social change. This process is being enacted more or less spectacularly in all countries of the world. Although prevailing conditions are different, indeed unique, in each country, general tendencies are distinguishable. With its programmes of study the Institute endeavours to engender a better understanding of these problems and, to this effect, follows a method of teamwork between individuals and groups, between different nationalities and between different scientific institutions.

The Institute's curriculum is as follows:

A *Two-year Course in the Social Sciences* commences annually in the month of September. The subject of this course is social change and economic development in their widest sense. Academics of different branches of the social sciences make a joint study of this subject, which leads to a better understanding of the socio-cultural process of growth, development and structural change. The course lasts from 16 to 21 months, the duration varying according to each participant's individual object of study.

A *Seven-month Course in Social Welfare Policy*, also starting annually in September, concentrates on social policy as a conscious contribution to the establishment of satisfactory human relations in a developing society. A new subject, i.e. *Child and Youth Welfare Policy* is to be introduced as a separate choice section of this course. The course comprises two three-month terms and a one-month observation period.

A *Four-month Course in Comprehensive Planning*, held from September to January, seeks to meet the need for planners who are able to combine a deep insight into their own planning specialization with a wide outlook on the large complex of planning activities serving the technical, social and economic development.

A *Six-month Course in Public Administration*, starting in January each year, aims to activate a general insight into the methods and principles of administration such as they may be learned from experience gained both in government services and in large concerns and organizations. Candidates who complete this course with special merit are subsequently offered the opportunity of following a training which leads to the degree of Master of Public Administration.

A *Six-month Course in Economic Planning and National Accounting*, commencing annually in January, familiarizes participants with the planning process and with the methods that may be followed to cope with economic data for planning purposes. All courses, which are at post-graduate level, are given in the English language. Participants who do not have a sufficient knowledge of English can attend an *Orientation Course* in the English language and the Anglo-Saxon approach to the social sciences, which begins three of four months ahead of their main course.

The Institute is an international scientific community. The courses – varying in duration from 4 to 21 months – are attended by sociologists, economists, political scientists and technologists who come from all parts of the world. (125 students from 35 countries are taking part in the courses this year). All are academics (for the main part graduate students, but also professors), or persons who hold responsible positions in public life in their own countries (for instance, national and regional government officials, functionaries of social organizations, staff members of banks and employees of development companies.)[1] The teachers attached to the Institute also belong to this community. The core of the teaching group is formed by a permanent scientific staff, headed by the Rector, Professor Dr. E. de Vries, who resides in the Institute. The faculties of the courses are recruted among professors of Netherlands and foreign universities and colleges as well as among other experts from the Netherlands and other countries.

The Institute's character as a working community is manifest in the first place in its design as a residential college. Located in the centre of The Hague, it is housed in a building eminently suited for this purpose although it originally had another function altogether, namely, the former Palace Noordeinde. This Palace, the oldest foundations of which date from 1533, was assigned by H.M. Queen Juliana in 1952 to serve as a scientific centre for Netherlands science. Where once the Netherlands dynasty resided for three-and-a-half centuries, there are now lecture halls, a library, student living quarters, dining rooms and recreation halls. Gracious surroundings indeed that inspire good scientific achievements. Furthermore, the building is also the scene of regular scientific conferences held by international organizations. Owing to its divers activities, its technical facilities and its central location (The Hague is the focus of national life in the Netherlands, which, in turn, is favourably situated in North West Europe between the United Kingdom, Germany, France, Belgium and the Scandinavian countries), the Institute is a true clearing house in the domain of the social sciences. In addition to the students and associates working in the Institute, a large number of individual scholars come there in search of scientific material or scientific contacts.

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[1] Candidates for the Institute's courses must be graduates in one of the social sciences (Master of Arts, Licence, etc.) and for the shorter courses must preferably have some years' experience in the public service.

Besides the physical bond characterizing the Institute's working community, the working methods also deserve mention. The Institute's guiding consideration is that everyone has something to learn from somebody else: students from the faculty, but also the faculty from the students, the students from the students and the faculty from the faculty. Lectures and classes ar given, but also seminars where stress is laid on the discussions and scientific contributions of the participants. The working methods naturally vary according to the subjects of the courses. In the Social Sciences and Public Administration Courses specific subjects are investigated frequently by small teams of students. They write papers or group reports on these subjects which are subsequently debated in plenary meetings with the other members of their course. In the Economic Planning and Comprehensive Planning Courses, a great deal of value is attached to practising the acquired theoretical knowledge and tools on case projects. In the Social Welfare Policy Course all participants choose a concrete subject (for example. a social welfare organization, a training system, etc.) which they observe in practice for a period of a month in the middle of the course. All courses of the Institute have in common that they represent a combination of theory and practice (also in the form of working visits in the Netherlands and neighbouring countries), and a combination of group work and individual work. At the conclusion of his period of study each student submits an individual thesis or research paper, the merits of which decide his eligibility for a certificate. Successful participants to the Social Sciences Course receive the degree of Master of Social Sciences.[2] Participants to the shorter courses can obtain diplomas in Public Administration, Economic Planning and Social Welfare Policy and a certificate in Comprehensive Planning. Finally the degree of Master of Public Administration is conferred on graduates of outstanding merit of the Public Administration Course who have successfully completed a special programme of study after the termination of the course. Scholarships are made available to well-qualified candidates.

Yet the value of studying at the Institute of Social Studies is not solely determined by the courses offered and the diplomas awarded. What is felt by participants and tutors of these courses to be a positive value is precisely the fact that they live and work together as an international group of members of the most widely divergent nationalities, religions, races and political denominations who learn to understand one another as individuals and who, each in his own fashion but also all together, strive for a happy and prosperous world.

The International Course in Hydraulic Engineering and the European Course in Sanitary Engineering

The International Course in Hydraulic Engineering at Delft will enter its fourth year in October 1960. The 1959–1960 course was attended by 34 engineers from 18 countries. Participants consist of university-trained engineers who have spent a number of years practising civil engineering. A number of them are in the employ of technical government services, engineering firms and building contractors, while others are professors or engineers attached to laboratories. The course, which was instituted by, and is based on the co-operation between the Netherlands Universities Foundation for International Co-operation (NUFFIC) and the Technological University at Delft, lasts eleven months and provides specialization in three main branches of study:

a. Tidal and coastal engineering, including harbours;
b. Land acquisition and reclamation, special attention being paid to the use of groundwater;
c. Rivers, canals and inland navigation projects.

Those taking part in the course can choose their own programme of study by combining various subjects of the three principal branches. Practice has shown that aside from this choice, participants try to attend as many classes in the different subjects as possible, including the ones that fall outside their own selected field. Some 30 Dutch tutors give lectures covering from six to 45 hours per year, while a large number of experts in various fields deal with special subjects in one or more guest lectures. Particular attention is paid to the scientific bases of the subjects under discussion and to the auxiliary subjects that are important in practice.

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[2] The official recognition of this and other diplomas awarded by the Institute has been laid down in a draft bill on Scientific Education.

With respect to harbour construction, for instance, a survey is given of shipping subjects that concern the harbour authority; for specialists in the field of land acquisition the principles of agriculture are discussed; in the rivers and canals section an expert deals with the economic and technical side of inland navigation. Much time is spent, moreover, on auxiliary subjects such as hydrology, ground mechanics and hydraulics. Participants, besides attending lectures, work out papers and designs. Thanks to the co-operation of several colleagues, course members are given the opportunity each year anew to study important Dutch hydraulic works on the spot. This programme of excursions and study trips, which takes about 50 days a year, is rounded off by a number of study tours in Europe, outside the Netherlands. The enthusiasm with which the classes are followed, the devotion with which the work is carried out, and the excellent spirit which prevails among the participants all indicate that this course may be considered a successful venture.

For this reason, and in view of the experience gained earlier with the International Course in Hydraulic Engineering, ways and means were sought to place Dutch knowledge in other fields of science at the disposal of international educational requirements, and the attention focused on civil sanitary engineering. The pollution of surface and groundwater, the recovery of drinking water and the supply of water for industrial purposes all combine to form an increasingly important problem which displays its own aspects in a highly industrialized Western Europe. The World Health Organization and the Organization for European Economic Co-operation, each in its own way, have been paying attention to this problem. However, a shortage of experts checks the execution of plans and postgraduate training in sanitary engineering is given in only a few places outside the United States.

As yet no such complete training exists on the European continent and if efforts to bring it about should succeed, there is no doubt that a need would be met. True, the Netherlands cannot claim to have so much more experience in this field than other countries – as it has in hydraulic engineering – but the standard on which this branch is practised here can definitely compare to that in neighbouring countries. There are different institutes in the Netherlands where the principal aspects of sanitary engineering are studied, while a number of interesting projects in this field are either under construction or already in operation. Furthermore, the Netherlands is centrally located between Germany, Belgium and the United Kingdom, three countries where the practice of sanitary engineering is also regarded as an important matter. Taking these considerations into account, the Netherlands Universities Foundation for International Co-operation, together with the Technological University at Delft, decided to institute a European Course in Sanitary Engineering. This plan was facilitated by the fact that the International Course in Hydraulic Engineering already existed, necessitating only a number of simple adjustments. The O.E.E.C. declared its willingness to grant financial assistance. This organization, moreover, is prepared to make a contribution towards the expenses incurred by participants from member countries. The European Office of the World Health Organization is lending its co-operation by placing foreign tutors at the disposal of the course. The programme of the course is planned on a broad basis. First of all introductory lectures are given on the social backgrounds of sanitary engineering. Insight into man's vital functions and knowledge of the begetters of diseases are as indispensable to the sanitary engineer as a thorough acquaintance with the chemistry and microbiology that form the basis of the purification of water and waste water. Next on the programme comes hydrology, the science treating of the incidence of water in nature, and the use of statistical methods.

The technical-scientific principles for the purification of drinking water and waste water are dealt with from a unified standpoint. Technical subjects such as the recovery of groundwater, the purification of waste water, the treatment of solid wastes and the control of river basins will be taught by experts from the various European countries. The research carried out in laboratories and the study of problems and installations in different countries of Western Europe ensure that the prospective sanitary engineer acquires the necessary practical training. French, Belgian, West-German and Dutch experts are among those who will give instruction. In other words the course, both with regard to its teaching staff its method of financing and its participants, will have a European character.

Participation in the course is open in the first place to Europeans who studied civil engineering at a university and preferably have some practical experience in this field. Applicants from other parts of the world where similar problems prevail are welcome to attend the course if space permits. Those who wish to obtain further information about participation should apply to the Netherlands Universities Foundation for International Co-operation, Molenstraat 27, The Hague.

With this course in sanitary engineering, which commences in October of this year and lasts nine months, the organizers hope to make a contribution to the development of European higher education.

International Agricultural Centre

An exceptionally large number of favourable technical and socio-economic environment factors have contributed to the fact that in the course of the ages the Netherlands has developed both quantitatively and qualitatively into an agrarian production area, the products of which are renowned in the remotest corners of the world.

It was not surprising therefore, when the United Nations Charter advanced technical assistance to underdeveloped countries as one of its principal aims, that the Netherlands placed itself in the centre of international interest in the agrarian sector of this assistance.

Not long after the Second World War the stream of offices in this domain assumed such proportions, that the Netherlands Ministry of Agriculture and Fisheries saw itself compelled to entrust all these activities to a separate autonomous institute, which subsequently developed into the International Agricultural Centre at Wageningen.

The task of this institute is twofold, i.e.:

a. it offers foreigners agrarian training or specialization facilities both on a secondary and higher education level;

b. it promotes the exchange of knowledge in the field of agriculture, particularly on an international level.

From an organizational point of view the I.A.C. carries out this task within the scope of the United Nations multilateral assistance programme, as a bilateral form of co-operation between the Netherlands and one or two other countries, and, more recently, under the American third country training programme.

The State School for Tropical Agriculture at Deventer was assigned the task of executing a complete educational programme for foreigners in the Netherlands who have had no preliminary university training. On completion of the stipulated three-year course, and conditional upon the results attained, students are awarded a diploma.

With respect to candidates holding a B. Sc. or equivalent degree, the feasibility of further studies, eventually with graduation to follow in the Agricultural University at Wageningen, is at present being studied.

Quite apart from the above-mentioned, more or less complete programmes of study, however, two forms of international assistance, both of them in the specialistic field, have since developed. Under the first scheme Dutch agricultural experts are sent out to underdeveloped countries for the purpose of assisting and advising the local authorities on the spot. Under the second scheme foreigners who occupy a certain position in their own country and have a sufficient knowledge of one of the modern languages, are given the opportunity of specializing in the Netherlands in their professional field.

In the execution of these so-called fellowship programmes, which are on a multilateral as well as a bilateral basis, close co-operation exists between the International Agricultural Centre and the fellowship department of the Ministry of Foreign Affairs' Bureau for International Technical Assistance on the one hand, and the numerous Dutch agricultural institutions, services, organizations and enterprises on the other.

The number of fellows annually received by the I.A.C. in this way is steadily growing. A remarkable factor in this respect is that the increase is currently entirely accounted for by the bilateral programmes and the American third country training programmes.

Also of a specialistic character are the shorter summer courses – generally lasting up to four weeks – held annually at Wageningen since 1953 by the I.A.C. in co-operation with the Ministry of Agriculture and Fisheries and the Agricultural University, and usually under the auspices of the F.A.O. and the O.E.E.C. Particulars are regularly published in this bulletin about these summer courses, during which various technical and/or economic aspects of agrarian production are elucidated and brought up for discussion. One of them, i.e. the International Training Centre on Methods and Programme Planning in Agricultural and Home Economics Extension, which took place for the eigth time in Wageningen from July 5 to 29 last, raised the number of international participants interested in this one subject to approximately 800, representing 60 countries.

Six-month International Course on Small-scale Industries

This course was established in 1955 by the Research Institute for Management Science (RVB), Nieuwe Laan 76, Delft, the Netherlands. The first course commenced on October 3, 1955. Similar courses were given in 1956, 1957 and 1958. As from 1959 two courses are given each year, one starting in May and the other in November.

The course aims to provide advanced education in the field of small industry development and management, and to disseminate the results from research carried out by the Research Institute for Management Science in small industry on an international basis, especially for newly developing countries.

The participants, numbering approximately ten at each course, have consisted of engineers, economists and officials responsible for the development of small industry, and of management personnel from small and medium-sized enterprises. Managers of small or medium-sized enterprises have also attended the courses.

The participants came from the following countries: Argentina, Belgium, Brazil, Burma, Ceylon, Chile, Cuba, Greece, India, Iran, Israel, Jordan, Korea, Nepal, Nicaragua, Nigeria, Pakistan, the Philippines, Poland, Thailand, Turkey, the United Arab Republic, Yugoslavia. The course is given throughout in the English language.

Admission requirements are: a Bachelor's Degree of a recognized university, proficiency in the English language, interest in small-scale industry and preferably practical experience in industry.

Up to 1960 the average age of the participants was 34 years. In 1960 the tuition fee amounts to US $ 1,000.— for the six months, while living and incidental expenses (estimated at US $ 100 per person per month) are borne by the participant. Scholarships for the course may be granted by foreign governments, international institutes (such as the International Labour Office, United Nations Technical Assistance Administration etc.), and by the Netherlands Government.

The subject matter is covered by lectures, case-studies, class discussions and practical exercises; field trips and plant visits supplement the programme.

A period of nine weeks is devoted to a field work assignment in one or more small enterprises.

Programme of the course

The course consists of a general programme common to all participants and an individual special programme drawn up in accordance with the participant's interests and special training needs.

General programme

This programme is common to all participants and consists of the following sections:

- Small Industry Management
- Small Industry and Economic Development
- Seminar on Small and Medium-sized Industry in the European Common Market
- Seminar on International Activities in the field of Industrial Development.

A large part of the material used in the General Programme is based on research done by the RVB as, for instance, the material on the setup and management of industrial estates – a powerful device in promoting harmonious industrialization. The seminar on small and medium-sized enterprises in the European Common Market is also attended by industrialists, economists, and other experts from the various member states of the Common Market and other European and overseas countries. This gives participants to the course an opportunity to exchange views with the other seminar participants, and moreover allows them to go deeper into problems which will undoubtedly affect the long-range economic policy of their own countries.

A series of group excursions is organized to various branches of industry.

Special programme

This is drawn up for each participant according to his particular training needs. The participant has to write a thesis, the preparation of which comprises:

- a period of field work in one or more industries
- supplementary visits to other industries and institutes
- study of the pertinent literature.

The thesis can relate to anyone of the following fields:

- the establishment and operation of new industries
- the improvement of the conditions in an existing industry
- the establishment and management of training centres, institutes and organizations to promote assistance to small-scale industry.

The participant must draw up a report which must be defended before a committee of experts.

Diploma

A diploma of the International Course on Small-scale Industries is awarded to participants upon their successful completion of the course.

Course Experiences

It was found during the past six years of operation that case-studies and practical exercises contributed greatly to the insight and understanding of the nature of the industrial management of small industries.

The participant derives the greatest value, however, from the field work assignment. Here he has the opportunity of observing management problems in actual situations and of applying his theoretical knowledge, under the experienced guidance of his coach.

During the past years participants have executed assignments in the following industries:

- Metal working: foundries, shipyards, hand tools, cutting tools, screws, aluminium products, galvanizing, etc.
- Machine industry: cranes, elevators, pumps, agricultural machinery, etc.
- Automobile industry: radiators, manufacturing, car body repairs, engine repairs, etc.
- Chemical industry: paint, pharmaceutics, paper products, rubber tyres, etc.
- Food products: fruit and vegetable canning, sweets, dairy products, etc.
- Other industries, such as: ceramics, porcelain, leather tanning, shoes, wooden furniture, plywood, timber, etc.

As part of the field work assignment extensive surveys were made in order to evaluate the place of a certain branch of industry in the economy, such as the :

- survey of the ceramic industry in the Netherlands
- survey of the bicycle industry
- survey of the food and vegetable canning industry
- survey of the furniture industry
- survey of the hand tool industry
- survey of the textile industry
- survey of the government workshops

or to evaluate the impact of certain institutions, such as the:

- survey of the training of supervisory personnel
- survey of the rôle of banks for medium-sized enterprises
- survey of technical education in the Netherlands
- survey of industrial estates in operation in the Netherlands
- survey of advisory services.

International Course on Building

Offered by the Bouwcentrum (Building Centre), the International Federation for Housing and Planning and the Central Organization for Applied Scientific Research in the Netherlands (T.N.O.).

The first International Course on Building commenced in October 1958. The object of this six-month course is to instruct participants in the most practical methods for efficient building. To this effect technical as well as economic problems are discussed in the theoretical part of the course.

During the practical part of the course, which lasts approximately four months, participants work under expert guidance in appropriate offices, institutions, etc. on a project they have brought along themselves or on one they have chosen in the Netherlands.

During the theoretical part of the course, which lasts approximately two months, participants attend lectures, take part in debates and join in excursions. The general character of this part of the course is expressed in the four main branches of study, i.e.:

- General preparations for building
  physical and economic planning
- Preparation of the design
  functional studies
- Integration of the result of technical research
  technical and physical aspects of building
- Preparation for the execution of the production
- planning of the execution and management.

Moreover, a number of subjects pertaining to the transmission of knowledge are dealt with in this part of the course in view of the fact that, up to a certain point, this branch forms part of the work of all course members.

Specialization takes place during the practical part of the course, when participants must choose one of the five subjects concerned in which to qualify in a practical manner. To enable them to carry out this practical part they are put to work either with the organizing bodies (Bouwcentrum, T.N.O. and the International Federation for Housing and Planning), or with government institutions, architectural firms, etc. concerned with buliding.

The course is intended for architects and civil engineers who hold at least a B.A., B.Sc., or equivalent academic degree. Participants must have a good knowledge of the English language to be able to follow the introductory lectures, take part in the debates and work successfully on a project during the practical part of the course.

The fee is Dfl. 2,400 or US $ 635, or £ 222.–.–.

The courses held in 1958-1959 and 1959-1960

were attended by participants from the following countries:
Argentina, Columbia, France, Greece, India, Israel, Kenya, Mexico, Pakistan, Poland, the United Arab Republic and Yugoslavia.

The third course, which starts on October 31, 1960, will last until the end of April 1961. The closing date for applications is September 15, 1960.

The International Course on Building is held for the main part in the Bouwcentrum. The Bouwcentrum is an international study and information centre for the building industry, domiciled in Rotterdam, which promotes international co-operation and the exchange of ideas between institutes engaged on building research, documentation and information. These various activities came to light in 1959, when an international building congress took place in the Bouwcentrum. Permanent and temporary exhibitions are held on the premises. Moreover, a library and different departments take care of various services such as information, documentation, transmission of knowledge, advice to the authorities, to trade and industry, etc. More than 200 permanent employees, many of them specialized in building subjects, as well as numerous part-time associates outside the Bouwcentrum, guarantee the quality of the work that is carried out. The training of functionaries employed in the building industry was begun in 1943 and since that time a large number of courses on building have been given in the Netherlands for different groups of these employees. The experience gained in this field through the years proved highly useful in preparing and establishing the International Course on Building.

On application a prospectus will be sent by the Course Registrar, Weena 700, P.O. Box 299, Rotterdam, the Netherlands.

The Philips International Institute of Technological Studies

The Philips International Institute was founded at Eindhoven in 1957 by the Philips concern, manufacturers of electronic components and devices, scientific equipment, lamps, etc., for the purpose of offering study facilities to promising young university graduates. Subjects of study at the Institute are chosen within the range of sciences and techniques practised by the Philips concern. Whereas electronics and applications thereof are the most common study matter, allied fields are sometimes chosen. The fact that electronics comprises a wide variety of subjects makes it necessary to draw up an individual programme of studies for each student. Such programmes are based on three main activities, viz. attending lectures, making a theoretical study and carrying out experimental work in the Institute itself, and spending a certain time in one or more research or design laboratories of the Philips factories.

Two courses of three months each are given at the Institute each year, namely, an autumn course (October-December) which concentrates on general electronic subjects, and an advanced-level spring course (February-May) which deals with one main subject. The 1960 spring course took "Television Transmission" as its main subject, and for the spring courses 1961 and 1962 "Computer Technique" and "Industrial Electronics" will be the respective subjects. Lectures are given by members of the Philips' laboratories' staffs and from time to time professors attached to Dutch universities are invited to speak on certain specialized subjects. Attendance is not compulsory at these lectures, students being free to choose those subjects that interest them or to spend most of their time in research or design laboratories.

The Institute's own well-equipped laboratory not only permits students to become acquainted with modern electronic apparatus, but also enables them to carry out experiments of an advanced nature.

As a third activity students may join one of the laboratories or factory departments where they are brought in direct contact with the experts working there. The nominal study period in the Philips International Institute is one year and, in principle, can begin at any date though the best time of the year to enter is the second half of September. No tuition fee is charged. During their stay at Eindhoven students can apply for an allowance to cover their cost of living expenses. No commitments, either for the student or for Philips, exist to extend the relationship between them after the study period has ended.

The number of students studying at the Institute is liimted to 25. Thus far 20 countries of America, Asia and Europe have been represented at the Philips International Institute.

A prospectus giving more detailed information on the Institute's activities and containing an application form will be sent to applicants on request.

INSTITUTIONS

Centre for Agricultural Publications and Agricultural Documentation

It is a well-known fact that the increasing flow of scientific publications raises grave problems for the practice sof cience. These problems are of a dual nature, i.e.: how can this flow of publications be steered into the proper channels and how can the knowledge laid down in all these publications be selected, recorded and applied in further researches? The first series of problems may be briefly summarized under the conception "publishing"; the second series under the conception "documentation."

Solutions to these problems can only be found by means of international co-operation – one that will have to be based on co-operation per scientific field and co-ordination per country. In the field of agriculture this co-ordination was brought about in the Netherlands in the Centre for Agricultural Publications and Agricultural Documentation (PUDOC), a foundation established at Wageningen by the Minister of Agriculture and Fisheries.

The objectives of PUDOC are twofold, i.e.:

a. to assist institutions of agricultural research in publishing;

b. to maintain a central literature documentation service in the agricultural field.

These objectives are subdivided as follows:

Assistance in publishing

As everywhere else, scientific publications tend towards ever-advancing specialization and therefore towards decentralization. As a counter tendency, however, there is the rising demand for central periodicals and series covering a wide range of subjects. For the time being these two tendencies will not be able to reach a good synthesis. PUDOC considers it its task to act in a co-ordinating capacity wherever and whenever possible and endeavours to attain this aim by:

1. *Using its own funds*

PUDOC can draw on funds at its disposal for the purpose of issuing publications. The most important series is that of the *Verslagen van Landbouwkundige Onderzoekingen* (Reports of Agricultural Results), which contain a large number of reports on Dutch agricultural research. To facilitate their accessibility in other countries, these reports are invariably accompanied by an extensive English summary, whereas tables and figures always comprise an English text in addition to the Dutch one.

Dissertations are also included in this series. The reports are widely distributed abroad, usually on an exchange basis. In order to keep foreign agricultural research institutes posted on what Dutch sister organizations are publishing, PUDOC issues a quarterly bulletin. This PUDOC Bulletin prints a list of Dutch publications of an agricultural-scientific nature. PUDOC mediates, moreover, in acquiring these publications for institutes abroad.

2. *Attending to the publications of others*

PUDOC has taken on the editorial and typographical production of a number of agricultural-scientific periodicals. There is some indication that this task will be extended in future. The care of publications, in fact, is quite often in the hands of research workers or professors, who, in so doing, are burdened with an extra activity that really falls outside their own scope.

3. *Advising on the issue of publications*

In many cases PUDOC's assistance is called in with respect to the issue of publications. This assistance may consist of giving advice in the editorial or typographical field, submitting a report on the best way to publish, and supplying information on existing publication possibilities.

4. *Giving courses*

Probably the best way to steer publishing into the proper channels is to give courses to those who have been specially charged to write publications. These courses last nine to 12 days and pains are taken throughout to ensure that members receive as much training as possible by means of self-activity, including the complete production of a publication.

Central literature documentation service in the agricultural field

To keep a central literature documentation service in the agricultural field up to date seems an impossible task when it is taken into account that this would require, i.a., recording the data of circa 25,000 periodicals. Fortunately, however, the situation is not quite so depressing. In the first place a large number of international journals of abstracts exist, each of which makes part of the extensive literature accessible to others. Moreover, the various institutes have specialized documentation systems which are available for use. PUDOC therefore confines itself to the following activities:

a. the issue in Dutch of a weekly journal of abstracts entitled *Landbouwdocumentatie* (Agricultural Documentation), which purports to give a general survey of literature that is important in practice;

b. the maintenance of a source register in which bibliographical data is recorded day by day;

c. the maintenance of a card index system in which not only its own documentation material is registered, but also the material obtained from other institutions.

Through these measures a documentation system has come into being containing enough material to provide a quick and fairly complete orientation of the literature on a subject.

Information is supplied in the form of short statements, literature lists and literature reports. Contacts with specialized documentation services in various institutes guarantee smooth co-ordination and the greatest possible avoidance of duplicates.

An international exchange of literature lists and reports was instituted a few years ago. On application PUDOC sends photocopies of its lists and reports to other countries and in turn, also on application, receives similar lists from abroad. In this connection the Quarterly Bulletin of the International Association of Agricultural Librarians and Documentalists serves as an intermediary as in it data on prepared lists and reports are published.

For the benefit of other countries, moreover, PUDOC produces a bibliography entitled: "Recent Publications on Agriculture in the Netherlands" which is published in the Quarterly Netherlands Journal of Agricultural Science. Finally PUDOC operates a service by which subscribers, on an individual basis, are notified of the appearance of articles in world literature on closely circumscribed, specialized subjects. Trade and industry especially are interested in this service, which is naturally kept very much up to date.

PUDOC is an organization that not only serves institutions for agricultural research in the Netherlands, but also those in other countries. Within the bounds of its possibilities it willingly lends assistance in its domain to anyone who needs it.

The IUC Promotes Management Education at University Level

The world of to-day, and to an even stronger degree the world of to-morrow, places high demands on the managers of enterprises. Advancing development, especially in the technical field, opens up hitherto unknown possibilities for the growth of prosperity by an ever larger disposal over goods and services with an ever smaller physical exertion. However, these possibilities must be grasped and fitted into a harmonious whole. This is the task of the managers. In addition, their influence through example, work and word, is rising steadily. The working community has a greater influence on man than the living community and so the influence of the leaders of the working community expands.

In this connection the university has a double task. On the one hand it practises the sciences that form the basis of the development sketched above; on the other hand people come to it who, on completing their studies, will sooner or later become leading figures. Thus considerable responsibility is placed upon it and every effort must be made to help it to shoulder this responsibility. Undoubtedly the mutual consultations and the exchange of ideas and materials, both international and national, constitute a means to this effect.

In order to stimulate this exchange the International University Contact for Management Education (IUC) was established in 1951 at the instigation of Professor Ir. B. W. Berenschot, then professor in the Technological University at Delft. From a small working group of 13 professors it has since grown into an international organization of more than 200 members in 22 countries. To carry out its activities the IUC has a permanent secretariat at Delft and is supported by the most important universities as well as by prominent industrial concerns. They provide support by their concern in the quality of higher education and its graduates, and by using the documentation supplied by the IUC in their own higher training programmes.

The IUC regularly organizes conferences and seminars for the examination and mutual comparison of what is being done by universities in different countries about the training of those who will eventually occupy leading positions in trade and industry. The seventh conference will shortly take place in Cranfield, England. Reports on these conferences, etc. offer an interesting variety of study material. Moreover, the IUC has a collection of educational material that is being selectively extended and about which its members are regularly kept informed.

In view of the fact that literature remains an important source of knowledge, the IUC regularly documents its members on the stream of books and magazine articles pertaining to subjects that are of importance in the training of leading functionaries.

Special attention is paid to the examination of the exact nature of leading functions in trade and industry and the most efficient training at university level for these posts.

In order to reduce the margin between theory and practice, the IUC, by means of international and national meetings and individual contacts, promotes the co-operation between university and trade and industry.

Under the auspices of the IUC an international periodical devoted to the comparative study of the management and organization problems, including training problems, of concerns is shortly to appear in four languages under the title: "Management International."

The IUC recognizes three kinds of memberships,

1. Titular Membership for teachers and research workers
   Contribution: Dfl. 25.— (£ 2.6.11; DM 27.55; N.F.Frs. 32.05; US $ 6.59) a year.
2. Associate Membership for junior teachers and interested parties
   Contribution: Dfl. 25.— (£ 2.6.11; DM 27.55; N.F.Frs. 32.05; US $ 6.59) a year.
3. Institutional Membership for universities, institutions at university level and industrial concerns
   Contribution: Dfl. 500.— (£46.16.9; DM 550.79; N.F.Frs. 641; US $ 131.75) a year.

For further information please apply to Secretariaat IUC (Executive Secretary: drs. C. A. Braun), Oosterstraat 94, Delft, the Netherlands.

INTERNATIONAL SCIENTIFIC MEETINGS

International Congress 1960 on the Technology of Plastics Processing

From October 17 to 19, 1960 an International Congress on the Technology of Plastics Processing will be held at Amsterdam under the auspices of the Royal Institute of Engineers, the Royal Netherlands Chemical Society and the Association for the Knowledge of Materials. The congress will be devoted to the study of recent ideas and developments in the field of the processing of macromolecular raw materials.

Information: Secretariate International Congress 1960 on the Technology of Plastics Processing, Tesselschadestraat 5, Amsterdam.

Fifth European Congress on Molecular Spectroscopy

The fifth European congress on molecular spectroscopy, one of the biannual meetings of the European Group on Molecular Spectroscopy, is to be held at the Royal Institute for the Tropics in Amsterdam from May 29 to June 3, 1961. Professor Dr. H. Gerding is chairman and Dr. D. H. Zijp, secretary of the Dutch organizing committee.

The congress will comprise three sections: a) Infrared and Rama Spectra, b) Ultraviolet Spectra and c) Microwaves and Nuclear and Paramagnetic Resonance.

Information: Anorganisch Chemisch Laboratorium, Nieuwe Achtergracht 123 Amsterdam-C,

MISCELLANEOUS

Professor C. J. Bakker

On April 24, 1960, at the age of 56, Professor C. J. Bakker lost his life in an airoplane accident in the United States. He was professor of physics at the University of Amsterdam and enjoyed international renown as director of the Centre Européen de Recherche Nucléaire (C.E.R.N.) at Geneva. The world Press published obituaries on his person and his work, but we must confine ourselves here to a short statement of facts.

Professor Bakker studied in Amsterdam where he passed his final examination cum laude and graduated, again cum laude, in 1931 on a thesis entitled: "The Zeeman Effect in the Spectra of Noble Gases." From 1927 to 1933 he was the assistant of Professor Zeeman, the Noble Prize winner, who in 1896 had confirmed experimentally that light is an electromagnetic radiation phenomenon. Zeeman first saw his theory confirmed by a natrium flame in a strong magnetic field, and subsequently wanted to determine the spectrum dispersion in other burning gases. Under Zeeman's direction Dr. Bakker elaborated this basic idea.

In 1935 Dr. Bakker joined the N.V. Philips at Eindhoven, where he became more and more engrossed in nuclear physics, then still in a preliminary stage. He perceived that there lay a study for the future. He was fascinated above all by the composition of the atom and the artificial change of its structure. Together with other physicists he carried on experimental preparations which led to the installation of the Philips' cyclotron in Amsterdam after the war.

In 1946 Dr. Bakker returned to Amsterdam, where he became professor of physics at the Municipal University and director of the Zeeman Laboratory. Shortly afterwards he was nominated director of the Institute of Nuclear Research (IKO). On many occasions his advice was sought on European matters pertaining to nuclear energy. In 1951 he joined the committee of specialists who were to prepare the foundation of the C.E.R.N., and in 1952 was appointed chairman of the working committee for the construction of a synchro-cyclotron. He subsequently had some share in the joint Norwegian-Netherlands nuclear research project at Kjeller. Finally, in 1955, he accepted the post of director general of the C.E.R.N., thus heading the joint nuclear researches of twelve European countries. He dedicated himself to this task and brought the C.E.R.N. to great development. Considerable success was booked in November 1959, when an energy of 24 milliard electronvolt was generated in Geneva. The death of Professor Bakker is not only a severe blow to the Netherlands, but also to European co-operation in the field of nuclear energy and to science as a whole.

Royal Netherlands Academy of Sciences

New Foreign Members

The nomination of Professor Dr. P. Fallot and Professor Dr. E. Wigner as foreign members of the Royal Netherlands Academy of Sciences has recently been confirmed by royal decree.

Dr. Fallot is professor at the College de France in Paris. His exceptionally vast and varied scientific labour includes researches in the field of general geology, paleontology and stratigraphy.

Dr. E. P. Wigner is attached to Princeton University, N.J., U.S.A., as Thomas D. Jones, professor of mathematical physics. He is one of the most versatile researchers in the domain of theoretical physics. In 1957 he was guest professor of theoretical physics for a period of six months in the State University at Leyden.

New Ordinary Members

By the same royal decree the nomination was approved of the following members: Professor Dr. A. C. Zaanen, Professor G. W. Rathenau, Professor Dr. J. F. Arens, Professor Dr. H. J. Lam, Professor Dr. J. H. P. Jonxis, Dr. C. J. Bouwkamp, Ir. B. D. Tellegen and Dr. J. P. Mazure.

Dr. Zaanen graduated in 1938 on a thesis entitled: "On Series of Proper Functions of Certain Border Problems." He is professor of mathematical analysis in the State University at Leyden since 1950.

Dr. Rathenau, who studied at Göttingen, has been working in the Netherlands since 1933. He is professor of experimental physics at the University of Amsterdam and director of the Amsterdam Physics Laboratory. Under his direction a group of research workers is currently engaged on the study of solid substances, particularly metals.

Dr. Arens obtained his doctor's degree at the University of Amsterdam in 1941. He is professor of organic chemistry in the State University at Groningen. His researches are concentrated especially on the chemistry of acetylene ethers. He was awarded the Netherlands Fund for Chemistry Prize in 1959.

Dr. Lam is professor of systematic botany in the State University at Leyden and director of the State Herbarium, which has been greatly extended under his direction.

Dr. Jonxis graduated at Groningen University with the thesis: "On the Incidence of Various Kinds of Haemoglobines in Children." He was appointed professor of paediatrics in Groningen in 1951. He is chairman of the European Society for Paediatric Research, and corresponding member of the British Paediatric Association.

Dr. Bouwkamp obtained his doctor's degree in mathematics and physics in 1941. He was professor extraordinary of applied mathematics at Utrecht University from 1955 to 1959, and since then is attached to the Technological University at Eindhoven. He has lectured as guest professor at Göteborg, Stockholm, New York, Washington and other American universities.

Ir. Tellegen is professor extraordinary of electric-circuit theory in the Technological University at Delft since 1947.

Dr. Mazure, in his thesis, analysed the work of Lorentz and made his method suitable for a wider field of application. He is professor of applied mechanics in the Technological University at Delft since 1950, and in 1956 was put in charge of the building construction classes.

Death of Two Dutch Astronomers

Shortly after each other, at the end of April and the middle of May, respectively, the deaths ocurred of two Dutch astronomers of the older generation, both of them scientists of international fame: Dr. A. Pannekoek, former professor at the University of Amsterdam and

Dr. P. J. van Rhijn, former professor of the State University at Groningen.

Professor Pannekoek, who died at the age of 87, graduated at Leyden University in 1902 on a thesis entitled: "Untersuchungen über den Lichtwechsel Argols." He was observer at the Leyden Observatory from 1899 to 1906. In 1916 he became external university lecturer in the history of astronomy at Leyden. He was appointed lecturer in astronomy at the University of Amsterdam in 1918, becoming professor extraordinary in 1925 and professor in 1932.

Professor van Rhijn, who died at the age of 74, studied at Groningen University where he graduated in 1915 on a theses entitled: "Derivation of the Change of Colour with Distance and Apparent Magnitude." He was attached to the Mount Wilson Observatory from 1912 to 1914. From 1915 to 1921 he was assistant to Dr. J. C. Kapteyn (1851–1922), the famous astronomer, whom he succeeded in 1921 as professor at Groningen University and as director of the Groningen Astronomical Laboratory.

Both scientists were interested in the structure of the Milky Way system. Though Professor Pannekoek was primarily absorbed by the direct natural phenomenon with all its intricate details, Professor van Rhijn was constantly pre-occupied with the structure's main lines. He was the executer and continuator of the researches on the structure of the Milky Way system, started by Kapteyn. He was, moreover, the soul of the international co-operation resulting from Kapteyn's "Plan of Selected Areas."

Professor Van de Hulst Member of the American Academy

Professor Dr. H. C. van de Hulst, professor of theoretical astronomy in the State University at Leyden, was elected foreign member of the American Academy of Arts and Sciences in May, last. The Academy, which was founded in Boston in 1780, elected 37 foreign members on the occasion of its 180th anniversary.

Honorary Doctorates in Leyden for W. T. Stearn and Professor Thorsten Sellin

The State University at Leyden decided in April last to award two honorary doctorates. W. T. Stearn, the British scientist and scientific collaborator of the British Museum Botany Department in London, has been awarded the honorary degree of doctor of mathematics and physics.

Professor Thorsten Sellin, an American of Swedish birth, who is professor of criminology at Pennsylvania University, receives the honorary degree of doctor of law.

Leyden University Medal for Professor Van Vleck

On June 17, last, at a formal meeting in the Senate Chamber, Professor Dr. J. E. Jonkers, Rector Magnificus of the State University at Leyden, presented Professor Dr. J. H. van Vleck, American guest professor of theoretical physics, with the Leyden University Medal. This honour was conferred on him in recognition of his services to Leyden University and to science in the country where his ancestors lived and worked.

Netherlands Institute at Florence Opened

On May 14, last, the Netherlands Ambassador in Italy opened a Netherlands Institute, the *Istituto Universitario Olandese di Storia Dell' Arte* at 5 Viale Torricelli, in Florence. This is the second cultural outpost of the Netherlands in Italy as the *Istituto Storico Olandese* has been functioning in Rome since 1904.

The Florentine Institute will serve primarily as a place of residence and study centre for Dutch students in the history of art. Its library comprises both works on Italy and on the Netherlands. It offers accommodation to groups of students who go to Italy to visit the art centres. It is hoped that musicologists and historians will also make it their pied-à-terre. The Institute will be in a position to play a role in the spreading of knowledge on the Netherlands and Italy.

Professor Einthoven Commemorated

A meeting which was attended by an international company was held in the Physiological Laboratory of Leyden University on June 25, last, to commemorate Professor Dr. W. Einthoven, who was born a century ago this year. Prof. Einthoven, who was professor of physiology at Leyden University from 1866 to 1927, was the founder of modern heart diagnostics, for which he was awarded the Nobel Prize for Physiology and Medicine in 1924.

Professor Dr. A. Snellen opened the commemorative meeting with a brief introductory address. He was followed by Professor Dr. A. de Waart of The Hague, one of Prof. Einthoven's former assistants, who related some reminiscenses of the time when they worked closely together.

Recalling certain conversations and characteristic parts of Prof. Einthoven's work, speaker brought to the fore how this great researcher, through his perseverance, had conquered difficulties; how for many years he had held to the improvement and perfection of the measuring instruments that were indispensable for the close study of electric vital phenomena, particularly of the heart. He added that the Einthoven Laboratory is an international scientific centre. At the close of his speech Prof. Einthoven's voice was heard on a sound recorder made from an old wax cylinder of the year 1924, as he dictated part of his last publication, which appeared posthumously.

Dr. M. Regnier of Brussels, who was formerly Prof. Einthoven's foreign assistant, discussed some aspects of his scientific work. After the party had gathered round the bust of Prof. Einthoven which stands in the hall of the Laboratory, Prof. Mr. J. E. Jonkers spoke a few words. He said that Prof. Einthoven had carried out pioneering work in the field of physiology, in which he had booked phenomenal results. He had toiled for thirty years to perfect his definitive theory on the essence of the electrocardiogram. His coil galvanometer and his vacuum coil galvanometer are renowned throughout the world. In the field of radiotelegraphy he had also done very deserving work. Working together with his son, and with the aid of a refined specimen of the coil galvanometer, he had established radiographic communication with Malabar. With his decease on September 28, 1927, a great man was lost to science, the Rector said. In conclusion he placed a wreath near the bust.

Earlier in the day, before the commemorative meeting, a symposium was held on the progress made in those fields of physiology on which Prof. Einthoven had been engaged.

Death of Professor W. J. de Haas

Dr. W. J. de Haas, former professor of physics in the State University at Leyden, died at the end of April 1960, aged 82. Dr. de Haas first studied to be a notary public and worked for a time in a notary's office. Becoming attracted to physics, however, he subsequently completed his studies on this subject at Leyden and graduated in 1912 on a thesis entitled: "Measurements on the Compressibility of Hydrogen Vapour at Low Temperatures." While still a student he became the assistant for a few years of Professor Kamerlingh Onnes in Leyden. From 1911 to 1913 he assisted Professor H. du Bois in Berlin, and from 1913 to 1915 was scientific researcher of the Physikalisch-Technische Reichsanstalt at Charlottenburg near Berlin. He worked for a number of years as a physics teacher, and was conservator of the Teylers Foundation in Haarlem. In 1917, together with Einstein, he was awarded the Baumgartner Prize of the Vienna Academy of Sciences.

That same year he was appointed professor of theoretical and applied physics in the Technological University at Delft.This was followed, five years later, by his appointment as professor at Leyden, where he made a name for himself by his experiments in the Kamerlingh Onnes Laboratory to attain the absolute zero point, and by his researches on the properties of matter at very low temperatures.

Ghent Appointment for Professor Minis

In June 1960, Dr. C. Minis was appointed professor of Germanic language and literature at the University of Ghent in Belgium. Professor Minis studied literature at the R.C. University of Nymegen and graduated at Liege University in 1946 on a thesis entitled: "Die Eneide von Herman von Veldeke und der Roman d'Eneas." For a number of years Professor Minis taught in various places in the Netherlands. He was lastly attached as a lecturer to the University of Marburg in West Germany.

DISSERTATIONS

Theology

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Free (Reformed) University of Amsterdam.

YOUNG, JAMES CALVIN DE. *Jerusalem in the New Testament. The Significance of the City in the History of Redemption and in Eschatology.* Kampen, 1960.
Free (Reformed) University of Amsterdam.

Law

CHRISTIAANSE, JAN HENDRIKUS. *De inkomstenbelastingvrijstelling voor de internationale ambtenaren.* (The Income Tax Exemption for International Officials). Deventer, 1960.
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JONKER HZN., HENDRIK. *Hoofdstukken uit de geschiedenis van de polder Wieringerwaard, 1610–1960.* (Chapters from the History of the Wieringerwaard Polder, 1610–1960). Amsterdam, 1960.
University of Amsterdam.

LEEUWE, MEDARDUS VICTOR MARIE VAN. *Fiscale problemen bij fusies van naamloze vennootschappen in Nederland en in enkele andere landen deelnemende aan de Euromarkt.* (Fiscal Problems in Amalgamations of Limited Companies in the Netherlands and Some Other Member Countries of the European Common Market). Deventer, 1960.
University of Amsterdam.

MARINUS, JOHAN HERMAN. *De Internationale Rechtbank in Saarland (1956–1959).* (The International Court of Justice in Saarland (1956–1959). Leyden, 1960.
State University at Leyden.

ROSKAM, KAREL LODEWIJK. *Inter-racial Relationships in the Union of South Africa and the International Community.* Leyden, 1960.
Free (Reformed) University of Amsterdam.

RUTGERS, PATRICK SJOERD JAN. *Schuld en verkeer. Beschouwingen over de strafwaardigheid van de onbewuste schuld, in het bijzonder bij verkeersdelicten.* (Negligence and the Traffic Problem. Considerations on Responsibility for Inadvertence, Particularly in Traffic Offences). Haarlem, 1960.
With a summary in English.
State University at Leyden.

TOP, GERARDUS JACOBUS VAN DER. *Samenvoeging van gemeenten. Analyse der parlementaire behandeling sinds 1851.* (Amalgamation of Municipalities. Analysis of Parliamentary Procedure Since 1851). Assen, 1960.
With a summary in English.
State University at Utrecht.

WINTER, RUDOLF CHRISTIAAN. *The New States and Their Constituting Instruments.* Amsterdam, 1960.
Free (Reformed) University of Amsterdam.

WUBBE, FELIX BERNARD JOZEF. *Res aliena pignori data. De verpanding van andermans zaak in het klassieke Romeinse recht.* (Res aliena pignori data. Pledging Another's Business in Classical Roman Law). Leyden, 1960.
With a summary in German.
State University at Leyden.

ZEBEN, CHRISTIAAN JOHANNES VAN. *De leer van het iustum pretium en misbruik van omstandigheden.* (The "Iustum Pretium" Doctrine and the Abuse of Circumstances). Zwolle, 1960.
With a summary in French.
State University at Utrecht.

Medicine

ANSINK, BERNARDUS JAN JOHANNES. *Over enige reflexen in het gebied van hersenstam en bovenste halsmerg. Een fysiologische en klinisch-anatomische studie.* (On Some Reflexes in the Area of the Caudex Cerebri and the Uppermost Neck Medulla. A Physiological and Clinical-Anatomical Study). Doetinchem, 1960.
With summaries in French, English, German and Italian.
University of Amsterdam.

BILDERBEEK, JACOBUS VAN. *Tweelingen. Een klinisch-verloskundige studie.* (Twins. A Clinical-Obstetrical Study) Amsterdam, 1960.
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BASIC DATA ON INTERNATIONAL COURSES OFFERED IN THE NETHERLANDS [1]

(see also the "International Courses" Section in this Bulletin)

Institute of Social Studies

Information: The Rector of the Institute of Social Studies, 27 Molenstraat, The Hague.

COURSES OFFERED:

a. Two-year Course in the Social Sciences, leading to the degree of Master of Social Sciences.
REQUIREMENTS FOR ADMISSION: Advanced academic standing in one of the social sciences.
NEXT COURSE STARTING: September 1961.
Closing date for applications: June 1, 1961.[2]

b. Seven-month Course in Social Welfare Policy, leading to the diploma in Social Welfare Policy.
REQUIREMENTS FOR ADMISSION: Practical experience in social work, preferably at the teaching and public service level.
NEXT COURSE STARTING: September 1961.
Closing date for applications: June 1, 1961.[2]

b. special. Specialization in Child and Youth Welfare Policy, within the framework of the Social Welfare Policy Course.
Dates and conditions: see (*b*).

c. Four-month Course in Comprehensive Planning.
REQUIREMENTS FOR ADMISSION: Graduate standing in social sciences, engineering, architecture or agriculture and broad experience in one of the various fields of planning.
NEXT COURSE STARTING: September 1961.
Closing date for applications: June 1, 1961.[2]

d. Six-month Course in Economic Planning and National Accounting, leading to the diploma in Economic Planning and National Accounting.
REQUIREMENTS FOR ADMISSION: Academic standing at graduate level in economics and/or broad experience in planning, national accounting and statistics.
NEXT COURSE STARTING: January 1961.
Closing date for applications: October 1, 1960.[2]

e. Six-month Course in Public Administration, leading to the diploma in Public Administration.
REQUIREMENTS FOR ADMISSION: Advanced academic status and broad experience in the public service or as a staff member in institutes of public administration.
NEXT COURSE STARTING: January 1961.
Closing date for applications: October, 1960.[2]

e. extended. One-year study programme leading to the degree of Master of Public Administration.
REQUIREMENTS FOR ADMISSION: Candidates for this programme must either have attended the Course mentioned unter (*e*) or another Course in Public Administration, approved by the Institute, with study results rated above average.
NEXT PROGRAMME STARTING: July 1961.
Closing date for applications: For graduates of the Institute of Social Studies, July 1, 1961. For other applicants April 1, 1961.

a. to e. previous. Four-month Orientation Course for non-English speaking students. In this course non-English (especially French) speaking students are trained to acquire a working knowledge of the English language in order to be able to attend one of the courses mentioned above under (*a*) to (*e*). Each course starts four months earlier than the main course.

Technological University at Delft — Netherlands Universities Foundation for International Co-operation

Information: Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.

COURSE OFFERED:

International Course in Hydraulic Engineering.
Three branches of study:
1. Tidal and coastal engineering;
2. Reclamation;
3. Rivers and navigation works.

The course lasts eleven months and leads to a diploma.

REQUIREMENTS FOR ADMISSION: a degree in engineering of a recognized institution of higher learning.

NEXT COURSE STARTING: October 1960 (at Delft).

Technological University at Delft - Netherlands Universities Foundation for International Co-operation

with the assistance of the Organization for European Economic Co-operation, and the World Health Organization.

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[1] Courses are given in English only, unless otherwise mentioned
[2] For Indian citizens application will close one month earlier.

Information: Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.

COURSE OFFERED: European Course in Sanitary Engineering; dealing with the struggle with water pollution in densely populated regions.

REQUIREMENTS FOR ADMISSION: A university degree in civil engineering or a related branch of study, and some practical experience in civil engineering.

The numeral clausus for admission has been fixed at 20 participants.

COURSE STARTING: October, 1960.

University of Amsterdam — Netherlands Universities Foundation for International Co-operation

Information: Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.

COURSE OFFERED:

Summer Course of the Combined Netherlands Universities.
Subject: National Values in a World-Community.
REQUIREMENTS FOR ADMISSION: Students or graduates of an institute of higher education.
NEXT COURSE STARTING: July 1961.

Research Institute for Management Science — Netherlands Universities Foundation for International Co-operation

Information: Research Institute for Management Science, (R.V.B.) 76, Nieuwe Laan, Delft.

COURSE OFFERED:

International Course on Small-Scale Industries. Theoretical and practical training in investigating and solving the specific problems of small-scale industries, and in finding a methodology which can be applied to the establishment of new industries. Successful attendance of the course leads to a diploma.
REQUIREMENTS FOR ADMISSION: B.Sc. or M.Sc. in engineering or equivalent degree of recognized universities.

NEXT COURSE STARTING: November 1960 until end of April 1961.

International Training Centre for Aerial Survey

Information: The Dean, International Training Centre for Aerial Survey, 3, Kanaalweg, Delft.

COURSES OFFERED:

a. Photogrammetry, including cartography, topography and theory of errors;
b. Photogeology;
c. Use of air photographs for soil survey and other agricultural purposes;
d. The same for forestry and other sylvicultural purposes;
e. Air photography and survey navigation.

Lectures and instruction are given in English, French or German.
Courses are adapted to individual needs, and may therefore vary from some months to two years.
REQUIREMENTS FOR ADMISSION: Dependent upon the individual student's programme of study.
NEXT COURSE STARTING: January 1961.

Institute of Oriental Studies, Leyden

Information: The Secretary, Institute of Oriental Studies, 61, Rapenburg, Leyden.

COURSES OFFERED:

Language and culture of Indonesia and Malaya, the Arabian Countries, Japan, China.

REQUIREMENTS FOR ADMISSION: Candidates must be qualified for university study in their own country.

NEXT COURSES STARTING: October 1960 (duration three or seven months).

Netherlands Universities Foundation for International Co-operation

Information: NUFFIC, 27, Molenstraat, The Hague.

COURSE OFFERED:

"Survey of the Netherlands" — introductory courses on the Netherlands, lasting about one week.

REQUIREMENTS FOR ADMISSION: usual requirements for university study.

NEXT COURSE STARTING: courses will be given during the summer months, upon request, for groups of at least 15 students.

Bouwcentrum (Building Centre)

Information: Bouwcentrum, P.O. Box 299, Rotterdam.

COURSE OFFERED:

International Course on Building in co-operation with the Central Organization for Applied Scientific Research in the Netherlands, TNO, and the International Federation of

Housing and Town Planning. The course is on the graduate level and lasts six months. Its object is to present a systematic basis for the treatment of the problems encountered in the building industry and to suggest a number of practical methods for tackling these problems.

REQUIREMENTS FOR ADMISSION: B.A., B.Sc. or equivalent degree of recognized universities or colleges. Applicants must, in their own countries, have a task concerned with building.

NEXT COURSE STARTING: October 1960.

The Philips International Institute of Technological Studies

Information: Director of Studies, Philips International Institute, Eindhoven.

COURSES OFFERED:

a. Individual, theoretical and experimental curricula on any subject within the range of Philips' activities; for instance, electronics and applications thereof, X-rays, light and lighting, etc.
b. Three-month course of lectures on basic electronics (October–December).
c. Three-month advanced-level course of lectures. The main subject of this course may differ from year to year but will generally be related to some form of applied electronics.

Teaching language is English. Nominal duration of a complete period of study is one year.

REQUIREMENTS FOR ADMISSION: a graduate science or engineering degree.

NEXT COURSES STARTING: In view of the individual character of the study, students may enter upon their course at any date; the courses mentioned will, however, usually start in October and February.

International Agricultural Centre at Wageningen

Information: Director, International Agricultural Centre, 1, Generaal Foulkesweg, Wageningen.

COURSES OFFERED:

Research and specialization facilities in special branches of agricultnral science, after completion of which a certificate is awarded. Training is adapted to individual needs and may vary from three to twelve months.

REQUIREMENTS FOR ADMISSION: in general M.Sc. or equivalent degree of recognized universities or colleges.

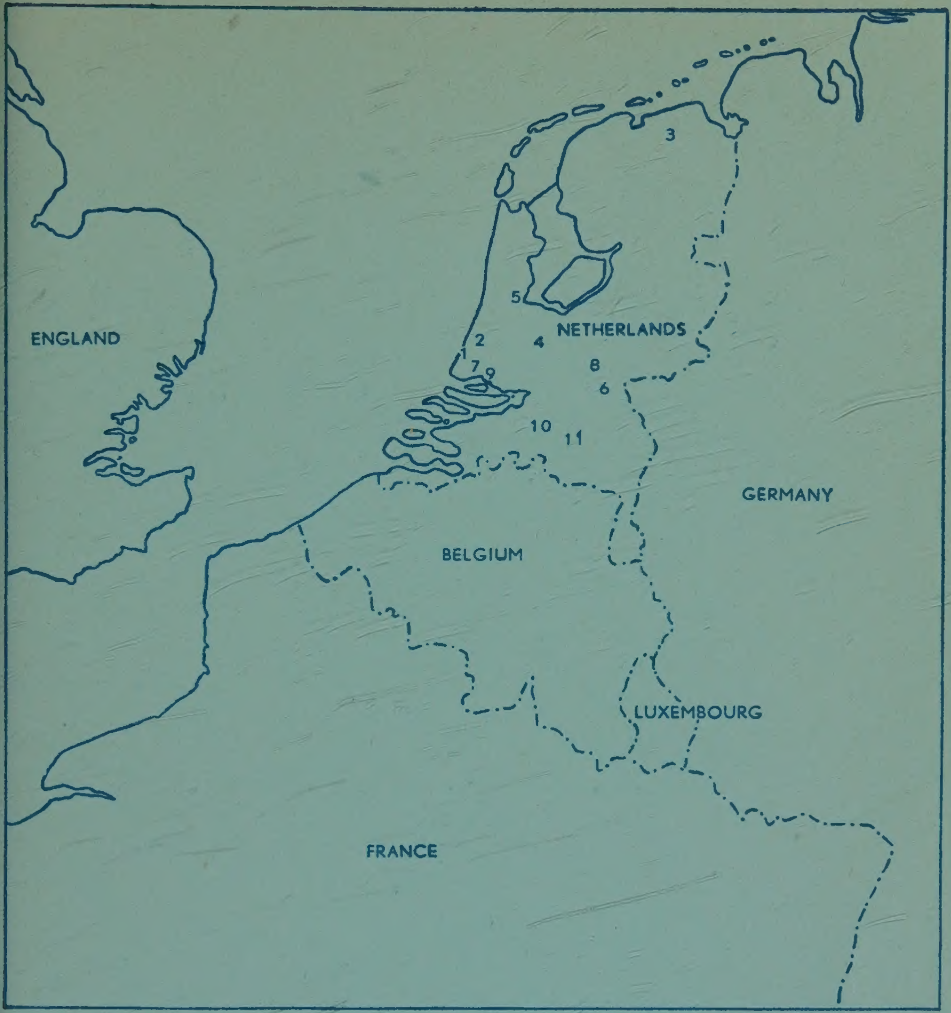
Institute for Atomic Sciences in Agriculture (I.T.A.L.), Wageningen

Information: Dr. D. de Zeeuw, Institute for Atomic Sciences in Agriculture, 32 D, Professor Ritzema Bosweg, Wageningen.

COURSES OFFERED: Four weeks' postgraduate course on uses and applications of radio-isotopes in biology and agriculture.

REQUIREMENTS FOR ADMISSION: advanced academic status in the fields of biology or agricultural science.

NEXT COURSES STARTING: Some three courses will be given each year.



1 = The Hague; 2 = Leyden; 3 = Groningen; 4 = Utrecht; 5 = Amsterdam; 6 = Nymegen; 7 = Delft; 8 = Wageningen; 9 = Rotterdam; 10 = Tilburg; 11 = Eindhoven.

The following institutions of higher education participate in the Netherlands Universities Foundation for International Co-operation:

State University at Leyden
State University at Groningen
State University at Utrecht
University of Amsterdam
Free (Reformed) University of Amsterdam
Roman Catholic University at Nymegen
Technological University at Delft
Agricultural University at Wageningen
Netherlands School of Economics at Rotterdam
Roman Catholic School of Economics at Tilburg
Technological University at Eindhoven

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